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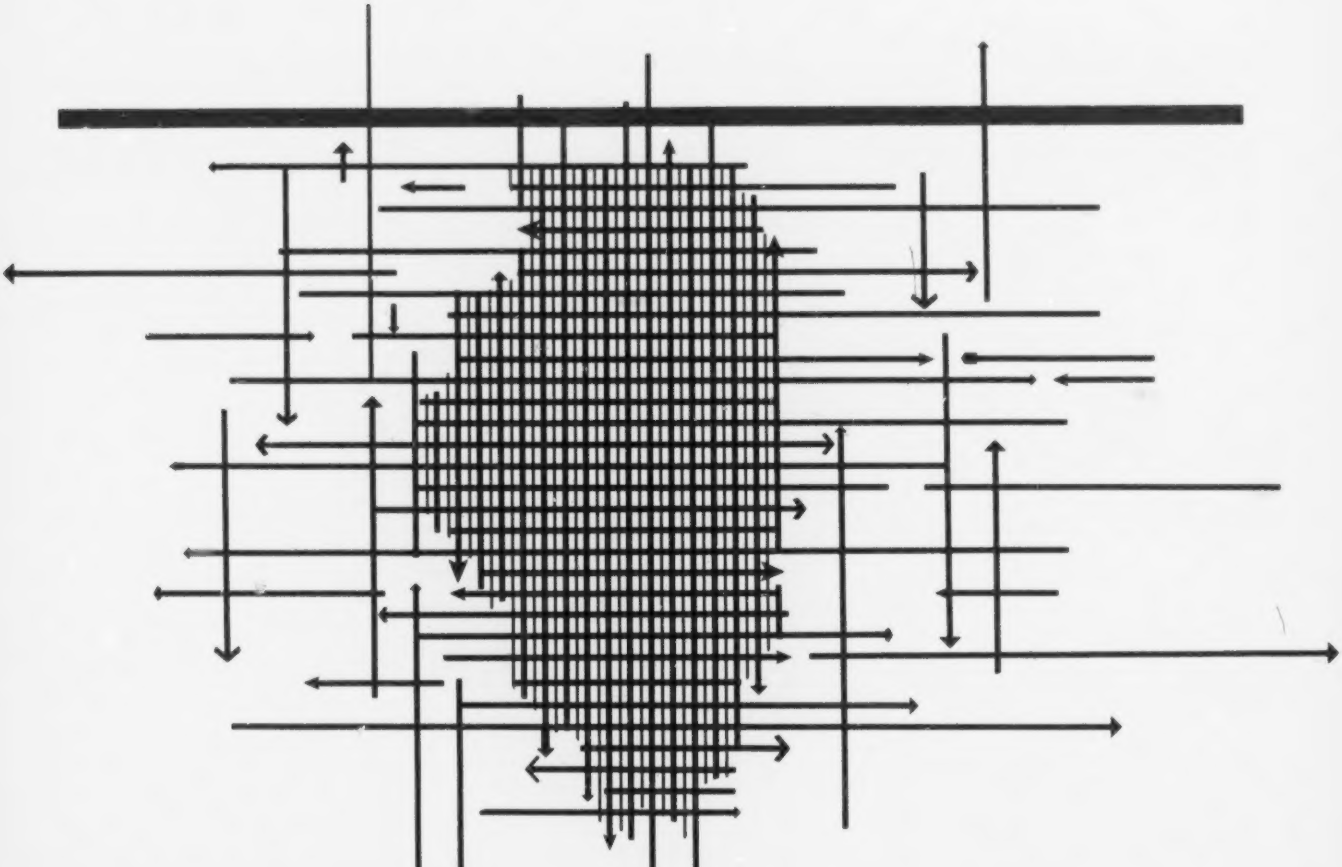

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Bureau of Economic and Business Research
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CARLA TIGHE

National Banking Now

On 1 July 1986 Illinois instituted regional interstate banking. Illinois banks may now be purchased by out-of-state banks if the home states of the purchasers have reciprocal laws. The Illinois law permits interstate banking only within the six-state region surrounding Illinois.

Of the six contiguous states identified by Illinois law, Indiana, Michigan and Kentucky have passed comparable legislation. Similar bills are expected to be passed in Wisconsin and Missouri. Iowa is not expected to act on the issue in the near future.

Regional interstate banking will strengthen midwestern banking. Large banks can take advantage of economies of scale, making them more efficient and less likely to fail. However, the reasons justifying regional interstate banking also hold for national interstate banking. The Illinois law needs to be expanded to allow for banks outside the area (in states having reciprocal laws) to buy Illinois banks. Furthermore, in order for Illinois to remain competitive, we need to be among the first to pass legislation that allows national branch banking.

This brings us to the primary reason for widening the Illinois law at this time: other states have already done so. Since the Supreme Court overruled federal laws prohibiting interstate banking in 1985, many states have provided for interstate banking on a regional level. Several have also included a timetable to open the states to nationwide branch banking.

The Illinois law, on the other hand, contains specific provisions to keep nonadjacent states' banks out of Illinois. Provisions to constrain branching to the region may limit the effectiveness of our law, although regional interstate banking is expected to make Chicago into an even greater financial center. The many corporate headquarters and rapidly growing suburbs make Chicago an attractive location for out-of-state banks. However, if surrounding states allow for nationwide banking before Illinois does, Chicago's financial growth could be curbed. It is plausible to imagine that New York banks would merge with banks in Milwaukee or Indianapolis. After all, these cities also have important advantages. Illinois banks outside Chicago should be concerned for two reasons. First, Illinois banks may find the best merger opportunities have been lost to banks in states that allowed national banking earlier. Secondly, the initial merger activity will have strengthened competitor banks in surrounding states. In this sense, Illinois banks may find themselves left behind. Illinois needs to be among the first who promote growth by opening its doors to nationwide banking.

Increased Efficiency

There are a number of reasons why growth is important to the Illinois banking system. First, strong midwestern banks with interregional branches can better compete with the giant banks in New York and on the West Coast. Larger banks can also take advantage of economies of scale and compete more efficiently. Merged banks can eliminate duplicative departments. Combining capital-intensive operations such as data processing will also help banks to operate more efficiently. Larger banks are able to raise funds at lower interest rates.

Considerations such as those outlined above serve to lower the cost of banking for consumers and to increase the range of available services. Therefore we would expect to experience lower service fees, increased loan availability, and increased convenience. Also, large national banks can better serve corporate customers whose executives travel frequently or who have many nationally dispersed offices or plants. In short, a national banking system can better serve the consumers.

Decreased Failures

Promoting growth at the national level is also justified for the simple reason that stronger banks are usually less likely to fail. Regional banks in the Midwest will continue to hold loan and deposit portfolios that are heavily balanced towards agriculture and heavy manufacturing. These industries are experiencing serious problems of their own that feed back into the local banking system. An Illinois bank that could also do business in, for example, the "high-tech" corridors of Boston is more likely to weather a regional recession. Also, smaller individual banks may find it more profitable to sell to a national holding company rather than to face increased competition, leading banks that might fail on their own to merge while they are still financially healthy. Thus national branch banking can increase confidence in Illinois banks by making them stronger.

Because the argument in favor of national branch banking is so strong, many analysts view this as the next step after regional banking becomes common. However, it is unlikely that the legislation providing for branch banking will be passed by Congress. Instead, national banking will spread as individual states pass reciprocal laws allowing it (as some have already done). Illinois needs to be among the first to take that next step by allowing banks outside the Midwest to acquire Illinois banks if their states have reciprocal laws.

National banking provides increased services more efficiently and strengthens the banking system. With the number of bank failures rivaling the number that occurred during the Great Depression, the benefits of national banking cannot be taken too lightly. For all these reasons, Illinois should have national banking now.

DAVID LEE

Illinois Leading Indicators

The outlook for the Illinois economy is for slow and steady growth over the next two quarters. This is the conclusion drawn by the index of leading indicators recently developed by the Bureau of Economic and Business Research at the University of Illinois at Urbana-Champaign. Of course, no leading indicator series, including the series constructed for the US economy, can always make an accurate forecast of swings in economic activity. However, careful development of a leading indicator series at the state level can lead to recognizable patterns in the series behavior that are able to indicate when the Illinois economy is about to change direction.

This article begins with a description of the methodology used to construct a leading economic indicator for Illinois. Next, adjustments made to the series based on the concept of a moving average are described, followed by the development of an algorithm to determine if the leading indicator series is correctly predicting turns in state economic activity. Finally, the performance of the series is reviewed over a recent 24-month period.

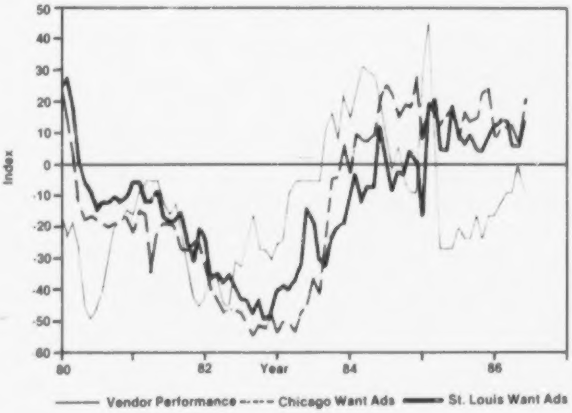
Construction of the Leading Indicator Series

The leading economic indicator is constructed in a manner similar to that employed by the US Commerce Department in compiling the national leading indicator index as described in the *Handbook of Cyclical Indicators*. However, state economies are subject to a number of influences that are not found at the national level. For example, the Illinois economy has agricultural activity as a higher percentage of its economy than does the nation as a whole. For this reason, the components of a leading economic index constructed on a statewide basis are necessarily different from those used in the national tabulation.

Each component of the Illinois leading economic indicator series was chosen on the basis of two important factors. The first relates to the speed with which data pertaining to the series are available; thus, even if an economic series were to lead economic activity perfectly, that series would be of little value if it were available only after a substantial time lag. Second, each series must lead economic activity both in theory and by inspection to avoid problems of spurious correlation. For example, if tuna sales led Illinois economic activity with a perfect three-period span, that series would be rejected as a component of the overall index because there would be no theoretical justification for its inclusion.

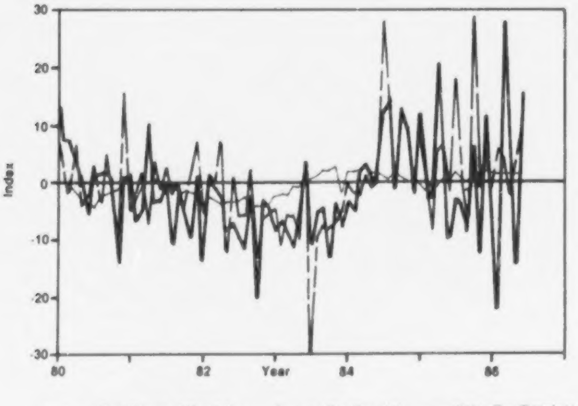
With these considerations in mind, the following monthly series were selected as the components used to calculate the leading indicator index for Illinois: average hours of durable manufacturing employment, building permits, initial claims for unemployment, income tax receipts (a proxy for personal income), sales tax receipts (a proxy for retail sales), Chicago vendor performance (percent of vendors reporting slower deliveries), and the help wanted indexes for Chicago and St. Louis. The data were seasonally adjusted using the X-11 Arima seasonal adjustment routine and transformed into an index (1972:1 = 100). After percentage changes in these indexes were calculated, a final series of components was generated by dividing the percent change by the average percentage change for each series. This was done to avoid series with high degrees of fluctuation from dominating the overall index. Finally, a composite index was constructed from an unweighted average of the eight individual components. This index and its components are illustrated in Charts 1–3 for January 1980 through June 1986.

Chart 1.



Source: Vendor Performance—Purchasing Management Association of Chicago
Chicago and St. Louis Help Wanted Ad Index—The Conference Board

Chart 2.



Source: Average Hours of Durable Good Employment—US Department of Labor, Bureau of Labor Statistics. Income and Sales Tax Receipts—Office of the Comptroller, State of Illinois, and Bureau of Economic and Business Research, University of Illinois at Urbana-Champaign.

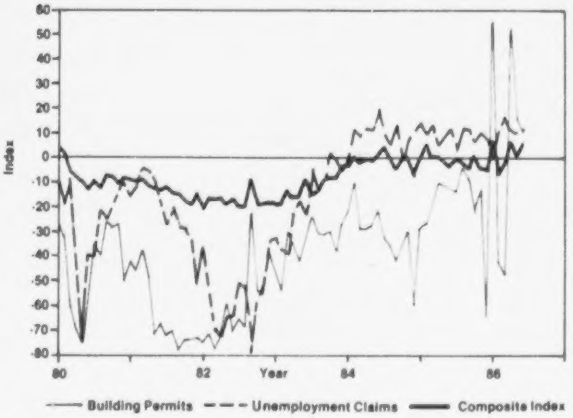
Adjustments to the Series

By comparing the composite index to an index of total Illinois nonagricultural employment, two observations can be made (Chart 4). First, as calculated above the composite index is extremely volatile. Second, this index does in fact lead the four major turns in the Illinois economy during the sample period (1972:1–1986:6). The economy experienced two peaks (1974:10 and 1979:8), and two troughs (1975:10 and 1983:8) over the time frame under study. However, the high degree of series volatility makes changes in overall trends difficult to assess. Therefore, the series is adjusted by performing a three-period moving average in the overall index. This series represents the final leading economic indicator series for the Illinois economy (Chart 5).

Identifying Peaks and Troughs

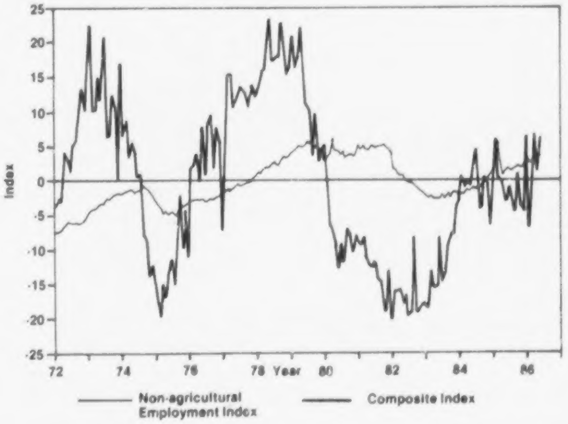
The next step is to specify a rule that allows the researcher to distinguish between changes in series trends that are short-lived as opposed to those that represent a turning point in the overall trend. An example of rules similar to this but somewhat different in application are the rules used by analysts who chart stock market activity. These people recognize that various patterns in the historical price of a stock can indicate a major change in the movement in the stock's price. For instance, the third dip in a stock's price may signal a prolonged fall in the price while a break through the 26-week high could signal of a rising price. Application of these principles to the leading indicator series represents a method for determining changes in the series overall trend, which in turn will signal major changes in future economic activity.

Chart 3.



Source: Building Permits—US Department of Commerce. Unemployment Claims, Illinois Department of Employment Security.

Chart 4.

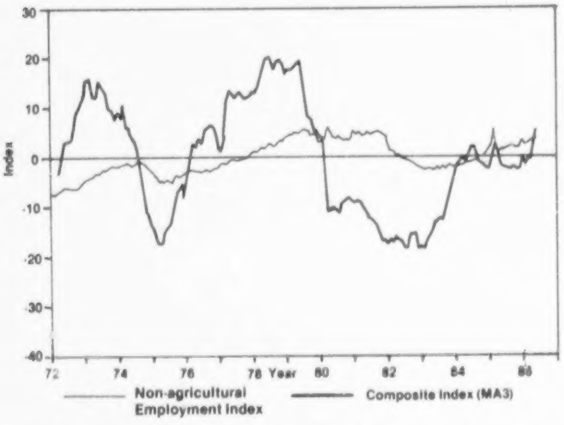


Source: Nonagricultural Employment Index—US Department of Labor, Bureau of Labor Statistics, and Bureau of Economic and Business Research, University of Illinois at Urbana-Champaign.

The methodology for selecting a rule that will indicate changes in economic activity is based on a simple statistical property of a moving average. Specifically, it is a fact that as the number of periods included in a moving average of an increasing series is increased, the value of the averaged series relative to the value of a moving average series with fewer periods will decrease. Hence, a four-period moving average will always lie below a two-period moving average for an increasing series. Similarly, the value of a moving average series will increase as the number of periods included in the average increases when the series is decreasing. Thus, a four-period moving average will lie above a two-period moving average if the series is in decline. Finally, when the series changes direction, it must be the case that moving averages of different lengths must cross, and it is the identification of these crossing points that will constitute the rule for change in the trend of the series.

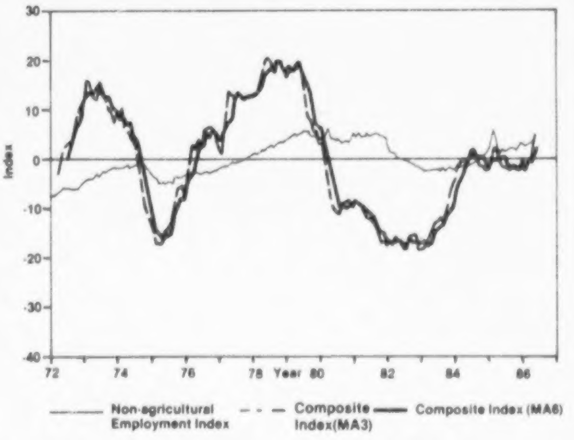
Unfortunately, the procedure outlined above is not so simple if applied to the leading indicator series because of the fluctuations that remain in the series even after smoothing with a three-period moving average. Such variation results in brief periods of time in which the series is in decline even though the overall trend of the series is increasing. Furthermore, the series may increase for a few periods while the general trend of the series is waning. The problem is that such periods cause moving averaged series of different duration to cross even if the overall trend of the series has not changed. Thus, the task is to determine the number of periods to include in the moving average so as to eliminate or minimize the number of false signals emitted concerning turns in the general trend of the series.

Chart 5.



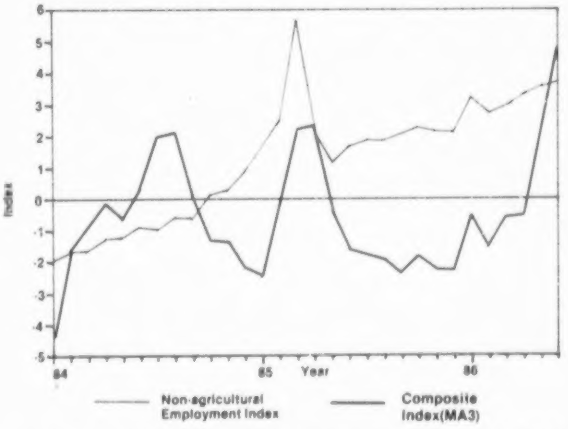
Source: Nonagricultural Employment Index—US Department of Labor, Bureau of Labor Statistics, and Bureau of Economic and Business Research, University of Illinois at Urbana-Champaign.

Chart 6.



Source: Nonagricultural Employment Index—US Department of Labor, Bureau of Labor Statistics, and Bureau of Economic and Business Research, University of Illinois at Urbana-Champaign.

Chart 7.



Source: Nonagricultural Employment Index—US Department of Labor, Bureau of Labor Statistics, and Bureau of Economic and Business Research, University of Illinois at Urbana-Champaign.

After examining numerous combinations of moving averages, the rule selected for the Illinois leading economic indicator series is as follows: If the three-month moving average series rises above or falls below the six-month moving average series for four consecutive months, then the leading indicator series is communicating a major change in economic activity (Chart 6). This particular rule for determining changes in economic performance was chosen because it represents a simple algorithm for determining such changes, and because it did not send incorrect signals about up-turns or down-turns in the state economy over the sample period. However, the accuracy of such a rule is hindered by the fact that only four turns occurred during the sample period. With such a low number of observations, any rule must be suspect.

Behavior of Index: January 1984 to June 1986

The 30-month span from January 1984 to June 1986 yields a particularly interesting illustration of the behavior of the leading economic indicator series (Chart 7). For the first eight months of 1984, the series continued to increase, corresponding to a simultaneous increase in the index of nonagricultural employment. However, the series took a dramatic five-month plunge beginning in September 1984, indicating that recessionary pressures were on the horizon for the Illinois economy. In April of 1985, this prediction turned out to be correct as the employment index began to decline over the next two months. Therefore, the leading indicator index had correctly anticipated the economic downturn with a lag of seven months.

The more recent history of the leading economic indicator series is less certain than that of previous months. The series increased for the first four months of 1985, while staying above the six-month moving average for only three periods, signaling the potential for an economic upswing. As implied, the economy did in fact offer a slight rebound beginning in June of 1985. Unfortunately, the leading economic indicator series again began to dip in May 1985 and remained below the six-month moving average for seven months. This development signals a minor decline in Illinois economic activity beginning somewhere in the last half of 1986. This corresponds to many predictions made by economists before the drop in oil prices in the first part of 1986. However, December of 1985 showed a marked improvement in the index, and a continued increase in the index for the first six months of 1986 suggests that the predicted downturn may never materialize. Instead, the index seems to indicate slow steady growth in economic activity over the next two quarters.

Conclusion

There are a number of problems with this formulation of the leading indicator series. First, the series is constructed on the basis of a simple average compared to the weighted-average method employed by the Commerce Department. However, such a weighting scheme, based on a somewhat arbitrary method of "scoring" component performance, is not a major improvement over a method using only a simple average. A second problem with the leading indicator series is that the lead times are not very consistent over the study period. For example, the series leads the downturn in the economy beginning in 1974:5 by 14 months, yet it leads the recovery which began in 1975:10 by only 6 months. This is a serious problem that does not have an easy solution. In fact, the Commerce Department does not indicate the period by which the US series leads the national economy. However, the series described here does present a method of quantifying predicted changes in the state economy based on the performance of several key components of the Illinois economy.

JAMES R. FREW and G. DONALD JUD

Real Estate Brokerage Franchises: What Are Their Value?

In recent years, many real estate brokerage firms have chosen to affiliate with national or regional franchise organizations. The Department of Commerce estimates that there were some 15,413 franchisee-owned real estate brokerage firms in the United States in 1981. Franchise affiliates made up about 30 percent of all real estate brokerage establishments, and they had gross commissions totaling more than $3.2 billion in 1981. Commission income received by franchise firms grew 15.3 percent during 1981–83, while the number of franchise brokerage establishments increased 13.2 percent.

In the brokerage industry as elsewhere, franchising involves the sharing of intangible capital such as trademarks and goodwill between the franchisor and his franchisee. This kind of sharing often evolves because of a divergence between the scale of operation most efficient for promoting and advertising a brand or trademark and the scale of operation most efficient in the actual production of the product or service.

In the real estate industry, national trademarks or brand names are useful to consumers because it is difficult for buyers and sellers who are unfamiliar with a local housing market to obtain information on the quality of services available from local brokers. Instead of trying to gather information on their own, many buyers and sellers rely on a national trademark as a guarantee of minimum quality of service.

A survey conducted by the National Association of Realtors in 1980 revealed that 78 percent of respondents felt that "reputation of agent or firm" was very important in selecting a real estate agent. In contrast, only 28 percent listed the "commission or fee" charged by the broker as being very important.

Recognition of the importance of "reputation" to consumer choice in the brokerage industry suggests why brokerage trademarks manufactured through national advertising may yield significant economic benefits. The National Association of Realtors has for many years sought to establish "Realtor" as a brokerage trademark. More recently, as federal antitrust decisions have curtailed the ability of realtors to continue their traditionally exclusionary practices, some individual brokers have formed associations to jointly promote themselves on a metropolitan or regional basis.

The value of a franchise affiliation or trademark to an individual real estate broker depends on the quality it "guarantees" to buyers and sellers. The promise of quality service to consumers is promoted by the franchisor through advertising and must be maintained through proper monitoring of the operations of franchise affiliates. For a franchise affiliation to have value over time, the franchisor must continue to advertise and to police the operations of the franchisees.

When a real estate broker buys into a franchise, he purchases the promise of the franchisor of the future value of franchise affiliation. Because future value to the broker depends on future actions by the franchisor, the broker (or any franchisee) usually will have a healthy skepticism about the worth of affiliation. The franchisor normally will not be able to get the broker to agree to pay a single, lump sum up front. Instead, payment for affiliation usually consists of some up-front charge plus a royalty fee collected as a percentage of sales. In this way, payments to the franchisor are linked to the future success of the franchisee, which in turn depends in part on the actions of the franchisor. In essence, the broker and the franchisor become partners in a joint enterprise, and each shares in the future profits of that enterprise. The franchisor usually will insist that the royalty fee be calculated on the basis of sales (or total revenue) rather than profits. This arrangement gives the broker (franchisee) the correct incentive to be efficient in the operation of those aspects of the enterprise that are under the broker's direct control.

We examined the impact of franchise affiliation on the operations of real estate brokerage firms in a recent article in the *AREUEA Journal.* ("The Value of a Real Estate Franchise," Vol. 14 (Summer 1986), pp. 374–83.) The following sections provide a summary of that article.

Franchise Affiliation is More Prevalent in Areas of Rapid Growth

A real estate franchise provides assurance of minimum quality to persons who must operate in a unfamiliar market setting. The greater the number of such persons in a local market, the more firms in that market are likely to choose to be franchise affiliated. An analogous situation is eating establishments along an interstate highway. Because most travelers on the highway are unfamiliar with local restaurants, it is usually advantageous for a restaurateur to affiliate with a franchise.

A similar situation exists in the real estate brokerage industry. In rapidly growing areas of the country, a large number of home buyers are recent inmigrants from outside the local area who are generally unfamiliar with the local housing market and have limited time to devote to searching because of the pressures of employment transfer. It is natural for such buyers to be drawn to a national franchise or trademark, and thus we can expect franchise affiliation among brokers in these areas to be more prevalent.

We found this to be the case when we looked at the fraction of real estate brokerage firms that were franchise affiliated in each of the 50 states. We found a significant positive correlation between the fraction of firms franchise affiliated and the rate of state population growth. This correlation suggests to us that franchise affiliation is more profitable for brokerage firms located in areas of rapid growth, where there is a substantial influx of buyers from outside the area.

Franchise Members Sell Higher-Priced Listings

If franchise affiliation provides prospective buyers with quality assurance, member brokers may attract those who wish to buy higher-priced listings. Of course, all agencies compete to assist these buyers, and since brokerage fees are typically a "percentage" of the sales price, selling more valuable property yields larger sales commissions. But such sales are particularly desirable to franchised agencies because association with them gives tangible support to the "quality image" that franchise membership is designed to enhance. Thus, affiliates should be eager to capitalize on any advantage expensive homebuyers perceive exists in enlisting their assistance, and greater quality assurance may give them the competitive edge they need over independent agencies.

To test this hypothesis, the average asking price of homes sold by franchise affiliates in Greensboro, North Carolina in 1979 was compared to that of independents. The average of 487 franchise sales was $44,152, while that of 446 independent sales was $41,727. A t-test revealed that the franchise group's average was significantly higher at the 95 percent (one-tailed test) confidence level. To be sure that this indicated a higher true market value rather than simply higher asking prices, actual sales prices of the properties sold by the two groups were also compared. Again, the franchise average ($43,142) was significantly higher than the independent's ($40,906) at the 95 percent confidence level.

These differences indicate to us that franchised firms attract a somewhat different mix of customers than nonaffiliated firms. Part of this difference stems from the fact that franchised firms attract more buyers who are moving in from out of town. In Greensboro, out of town homebuyers moving in from the North and East tend to have higher incomes and to spend more on housing than do resident buyers.

Franchise Affiliation Increases Brokerage Sales

To quantify the value of franchise membership, we conducted a survey of brokerage firms in three North Carolina cities (Charlotte, Greensboro, and Raleigh) during 1982. Brokers were questioned about the structure and operation of their businesses and their attitudes toward real estate franchising.

All agencies in the three cities (that were listed in the yellow pages) were surveyed, and responses were obtained from over 50 percent of them, a very high percentage for a survey requesting information of such strategic importance to competitors. This high a response rate minimized one important source of estimation error: sample bias. To further reduce such bias, firms who indicated that they did not consider residential real estate sales their main specialty were removed from the sample. Eighty-four responses remained; 21 percent of these (18) reported that they were affiliated with a franchise.

Comparison of the experience levels between the two groups revealed little difference, but franchised firms did have somewhat larger staffs who possessed different amounts of experience. Large differences were reported in sales. Franchise affiliates reported an average of $4.5 million in sales.

To determine what portion of the difference in average sales to attribute to the franchise membership, rather than differences in other characteristics, a regression equation was estimated. The regression equation statistically held constant other factors that also affect sales, such as, size of the firm's sales force, broker and staff experience, and so on. The analysis revealed that brokerage firms affiliated with national franchises had substantially higher sales than nonaffiliated firms. For the average firm in the sample, franchise affiliation appeared to add about $930,000 to firm sales.

Affiliated Firms Share Gains with National Franchisers

In the brokerage firm survey, franchise firms were questioned regarding the cost of franchise affiliation. The 15 firms affiliated with national franchises reported the following average costs associated with their franchises:

1. Initial Fee	$4,000
2. Royalty on Gross Commissions Earned	3%
3. Advertising Fee, Collected on Gross Commission	2%

To calculate an average benefit-cost ratio for franchise membership, information on the average commission rate charged on home sales and the normal commission split was required. Talks with local realtors indicated that the average rate charged on residential sales was about 6 percent. Of this, there was usually a 50–50 split between the listing and selling agents. If the salesperson who sold the property was employed by the listing agency, he (she) usually received 25 percent of the total commission, or about 1.5 percent of the sales price.

If the franchise firm is not the listing agency, the firm would normally receive half of the 6 percent commission, or 3 percent of the sales price. Of this, the franchise broker would pay his salesman one-half of what the firm received, or 1.5 percent of the sales price as a sales commission.

Our previous analysis indicated that the average broker received an additional $930,000 in sales because of franchise affiliation. Assuming that he is not (also) the listing agent for these sales, he would retain 1.5 percent of the additional sales, or about $13,950 after he paid his salesman.

The average firm affiliated with a national franchise had $5.3 million in sales. The 3 percent royalty fee plus the 2 percent advertising fee would be collected from this $5.3 million in sales. Assuming that the franchise firm was not the listing agency on any of these sales, the firm would receive gross commissions totaling 3 percent of sales, or some $159,000. Of this the firm would be required to pay $7,950 in royalty and advertising fees to the national franchise organization.

The cost of the franchise also includes the interest on the initial franchise fee. Assuming an interest rate of 10 percent, this would amount to $400. Adding this to the annual fees, the total annual cost of franchise affiliation for the average firm in the sample was estimated to be $8,350, so *the net value of membership was $5,600* (that is, $13,942 − $8,350 = $5,600).

These calculations suggest that the average franchise broker receives a portion of the profits created by the national franchise trademark. Because they receive a net benefit from franchise affiliation, it is to be expected that franchise affiliates would support the franchise arrangement. As expected, the survey also found that opinions of franchising expressed by brokers affiliated with a national franchise were favorable. Of national affiliates, 60 percent agreed with the statement that "franchise affiliation offers greater profit potential." Ninety-three percent agreed that "franchising enhances the competitive ability of the firm." Only 13 percent reported that they planned not to continue their affiliation with their national franchise.

The opinions of affiliates were found to accord with other evidence. *On balance, franchise affiliation in the real estate brokerage industry seems to be beneficial for the average affiliate because the franchisor appears unable to extract the full value of the additional sales that accrue to the affiliated broker because of the franchise trademark.*

James R. Frew is on the faculty of the Department of Economics, Willamette University, and G. Donald Jud teaches in the Department of Finance, University of North Carolina at Greensboro.

ERRATUM: In the July 1986 *Illinois Business Review* we mistakenly listed Arthur Getis's article, "Economic Well-Being among Chicago's Suburbs," as research funded by the Office of Real Estate Research. This was not the case.

CAROLYN WOJ

Computer Crime:
The Crime of the Future is Here

On 3 June 1986 the House of Representatives passed the Computer Fraud and Abuse Act of 1986. This bill makes the use of computers for certain cases of theft or fraud a federal felony. It is intended to strengthen states' efforts in combating computer crime and is expected to be ratified in the Senate. It should be noted that this bill comes after a computer crime bill passed last year that makes it a felony to use a computer in a way that might harm the national interest. The new bill is more general.

Computer technology affects nearly everyone. There are currently more than 200,000 computer centers in the United States, and we are becoming increasingly dependent on the computer. Total user spending on data processing in the United States is expected to increase from 2.1 percent of GNP in 1970 to 13 percent in 1990.

With the advent of computer technology, there has been an emergence of computer crime. A South African jewelry company reported computer-based thefts worth $3.5 million in August of 1983. A group of youths in Milwaukee penetrated the computerized radiation-therapy records of cancer patients in a Manhattan hospital last summer. When hospital authorities ordered the youths to stop tampering with their computer system, one youth responded that he and his friends "would be stopped in a couple of years by technological improvements in the computer systems." Although computer crime is now common, much remains to be known about the subject. Experts disagree on many aspects of the issue, ranging from how to define computer crime to its prevalence.

Defining Computer Crime

Some experts do not think that computer crime deserves attention as a separate category.

According to this view, computers are merely an up-dated means to commit old crimes. If someone steals a personal computer from a university, this crime can be accurately classified as theft. Misuse of company funds through the use of a computer can be termed embezzlement. Hence, some people feel that the term crime by computer is more appropriate than computer crime.

Others suggest that there are a number characteristics of computer crime that distinguish it from other types of crime. For example, the losses due to a computer crime are generally larger than the losses associated with other crimes. The technology associated with the computer at present also makes it difficult to detect most computer crimes. In fact, most computer crimes are discovered by accident. Even when a computer crime is detected, it often goes unreported. Figures on computer crime are understated due to the problem of detection and a number of other factors. For example, victims of computer crime often fear a loss of public confidence. Also, since proof of the crime is difficult to assemble, there is a heightened risk of false-arrest charges. Some people also feel that the publicity about computer crimes will lead others to try similar things. Another aspect of computer crime that distinguishes it from other types of crime is the difficulty of prosecution. Lawmakers in one-half of the states have only recently enacted laws dealing specifically with computer crime.

Four major categories of computer crime have been identified: introduction of fraudulent records or data into a computer system, unauthorized use of computer-related facilities, alteration or destruction of computerized information or files, and theft by electronic or other means of money, "financial instruments," such as checks and credit cards, and "valuable data" such as computer programs in machine- or human-readable form.

A number of specialists have attempted to examine the extent of computer crime in our society, but since the experts do not agree on exactly what computer crime is, their studies must be interpreted in light of their varying definitions.

A US General Accounting Office (GAO) study defines computer-related crimes as "acts of intentionally caused losses to the Government or personal gains to individuals related to the design, use or operation of the system in which they are committed." The GAO study gathered data from 10 federal investigative agencies. Sixty-nine cases of computer crime were uncovered. The average and median loss caused were found to be $44,110 and $6,749 respectively.

Donn Parker, who conducted a study at Stanford Research Institute (SRI), defines computer abuse as "any incident associated with computer technology in which a victim suffered or could have suffered loss and a perpetrator by intention made or could have made gain." The data for this study were from a variety of sources, and according to John Taber, only 77 of the 375 cases used in the study were verified. In this study the average loss due to computer crime was $450,000, 10 times the GAO estimate. The discrepancy could be a result of the different definitions of computer crime used in each study and the type of cases analyzed. The GAO study focused only on computer crime in the federal government, while the SRI study included the private sector.

A study by Brandt Allen used a more strict definition of computer crime than Donn Parker's. In his study, he divided the SRI data into four groups and estimated the average loss in each category. The resulting average losses per category were as follows:

1.	Cases committed in corporations	$621,000
2.	Cases committed in banks and savings and loans	$193,000
3.	Cases committed in state and local government	$329,000
4.	Cases committed in federal government	$45,000

When the SRI data were divided, losses as a result of computer crime in the federal government were consistent with the GAO estimates. It is important to realize, however, that the results of these studies are based on data of reported computer crimes. Actual losses may have been quite different from what these figures suggest.

Protection against Computer Crime

Increased computer security is one means of deterring computer crime. In the past, computer systems were designed for easy use by people with limited computer experience. Computer systems that are easily accessible by first-time users are said to be user-friendly. There is a trade-off between increased computer security and the degree to which a computer is user-friendly. In general, if a system is user-friendly it is also vulnerable to unauthorized use. For example, computer networks such as Telenet and Tymshare, rent time on a host computer to numbers of users throughout the nation, and easy access is a key feature of the systems. Floyd Trogdan, head of network services at Telenet states, "We have a public network; it needs to be user-friendly. Would we consider making it harder to penetrate? We might. But you have to recognize that we provide a service and that the general customer wants easy access."

The move to increased computer security has lagged behind the times according to many experts. According to Geoffrey Goodfellow, a computer security researcher at SRI, "I don't think that most people are taking reasonable and prudent measures to protect their computer systems." Martin Hellman, a computer scientist at Stanford University, reinforced this belief: "It's terribly unethical for computer centers and networks to have the low level of security that they do. It's like leaving the keys in the ignition of an unlocked car."

Most cases involving unauthorized access of the University of Illinois computer (that is, theft of computer funds) are due to user carelessness, although the university system has a number of checks and safeguards to protect computer funds. For example, audit trails are built into the system. In addition, whenever anyone uses the computer system a message appears at the beginning of the computer session giving the last time he or she used the computer. If the time given does not seem to be accurate, this could signal unauthorized use of the system. It is ultimately the responsibility of the user to attempt to prevent unauthorized access. The message informing the user of the last recorded computer session is useless if ignored, or if signon information is left in public. (Signon information consists of an individual's social security number, their password, and billing information. This information must be entered on the computer before using the system.)

Increased computer security is a first step toward deterrence, but it cannot reduce computer crime to zero. As Donn Parker puts it, "With even the most advanced computer systems, there is no known practical way of protecting user organizations if penetrators have sufficient skill, knowledge, access, and resources." Although increased computer security cannot totally eliminate computer crime, experts have agreed on a number of steps that can be taken to reduce the likelihood of its occurrence. Steps identified by the American Society for Industrial Security are as follows:

1. Separation of knowledge through the division of responsibilities, job rotation, physical isolation, controlled access, and logging of stoppages and interruptions.
2. Written programming instructions with threat monitoring and audit trails built in.
3. Careful accounting of all input documents.
4. Periodic changes in access codes and passwords.
5. Scramblers and cryptographic applications in data transmission.

Another means by which computer owners can protect themselves from losses is through the purchase of insurance against computer crime. Insurance provides a very significant risk management option beyond practicing loss prevention procedures. Approximately 20 million electronic-crime policies had been sold as of October 1983. Coverage varies among insurers. With the increase in cases reported in the news recently, demand for computer crime coverage has increased. The dollar amount of policies is expected to reach 100 million in the next three years.

The Need for Computer Crime Legislation

In addition to increased computer security, some experts feel that special computer crime legislation is needed to deter would-be computer criminals. Reasons cited for the need for special computer crime laws include:

1. The current lack of security in computer systems.
2. The difficulty of prosecution under laws that do not deal specifically with computer crime.
3. The need to alert the general public, and computer users in particular, to the risks of computer crime and awaken them from their false sense of security.

One of the difficulties in prosecution under laws not specifically dealing with computers lies in the definition of property. For example, in *Lund* vs. *Commonwealth of Virginia*, the Virginia Supreme Court decided that the taking of computer time and services in the form of printouts did not constitute larceny. The subject matter of larceny must be goods and chattels. The court found that computer time and services were not goods or chattels even though their taking represented a loss to the rightful owners.

Currently, one half of the states have computer crime laws. Florida, in 1978, was the first state to adopt this type of legislation. In 1979, Illinois joined a number of other states in enacting a law against computer crime. According to the Illinois law, a person commits unlawful use of a computer when he or she:

1. Knowingly obtains the use of a computer system, or any part thereof, without the consent of the owner; or
2. Knowingly alters or destroys computer programs or data without the consent of the owner; or
3. Knowingly obtains use of, alters or destroys a computer system, or any part thereof, as part of a deception for the purpose of obtaining money, property, or services from the owner of a computer system or any third party.

The sentences under this law range from a petty offense to a Class 4 felony, depending on the violation and the value of the loss incurred. Penalties range from less than $500 to a maximum of $10,000 and three years in jail. The Illinois law, like many other state laws, does not require that the victim take reasonable care in protecting their system from harm. A contributory negligence standard has not been adopted. In addition, individuals are not required to report a computer crime that they have witnessed. Thus, reliable data on the extent of computer crime will still be lacking. As of the beginning of 1984, no cases were tried under the Illinois computer crime law in an appellate court. This is not surprising, however, given that the law has only been in effect for five years.

State laws do not apply to computer crime offenses involving interstate and foreign commerce. In these cases, prosecution under federal law is necessary. A federal computer crime bill was first introduced in 1977, and since this time it has undergone a number of revisions.

Conclusion

Experts disagree on whether computer crime is a serious problem. According to Donn Parker, "the only safe computer is one that's not used." In contrast, John Taber feels that "computer crime is insignificant... computers should minimize the incidence of crimes such as fraud and embezzlement". A recent survey by the American Bar Association, however, lent support to the belief that computer crime deserves increased attention. The survey indicated that almost one-half of the respondents had been victims of electronic lawlessness in the preceding year. Twenty-five percent claimed that their losses ranged from $2 to $10 million yearly. In addition, several unique characteristics of computer crime distinguish it from conventional crime. Advanced technology has brought the crime of the future to the present.

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Illinois Business Indexes

This issue of the *Illinois Business Review* highlights consumer price indexes. Six graphs are presented for the five North Central US indexes in addition to the Chicago, Illinois CPI. These six graphs, rather than showing index levels, show bimonthly percentage changes except for the Chicago CPI, which shows monthly percentage changes.

The five North Central indexes show declines for February and April. The Chicago index also shows a decline for roughly the same period. Even more important, these are the first significant monthly declines in the indexes for several years. For example, the Chicago and North Central indexes last fell at the end of 1984. However, these were very slight declines. The North Central index (population greater than 1,250,000) last fell in December 1984 but only by .12 percent. In its ten year existence the North Central index (population 385,000 to 1,250,000) had never declined prior to August 1985. The North Central index (population 75,000 to 385,000) had only declined twice prior to August 1985. The index fell by .48 percent in December 1984 and by .26 percent in February 1983. The North Central index (population less than 75,000) had not fallen significantly since December of 1982 when it fell by 1.4 percent.

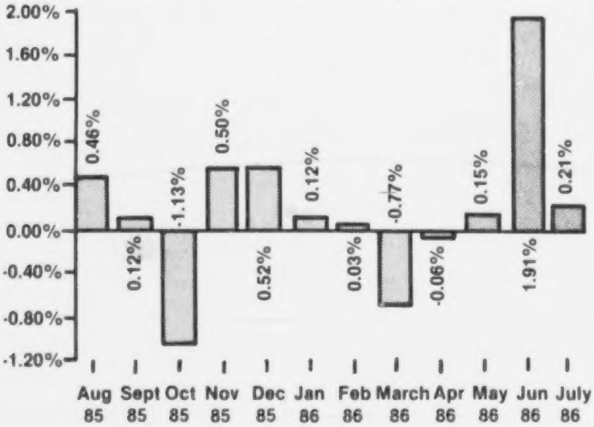
Illinois Business Indexes

	Percent Change July 1985- July 1986	*July 1986*	*June 1986*	*May 1986*	*April 1986*	*July 1985*	*June 1985*
Coincident indicator (1969 = 100)	5.34%	128.92	128.20	126.28	124.70	122.39	122.80
Employment-manufacturing (in thousands)[e]	0.89%	960.3	961.3	959.1	964.4	951.8	959.4
Average weekly hours-manufacturing[c]	1.49%	40.8	40.8	40.7	40.7	40.2	40.7
Weekly earnings-manufacturing[e]	3.84%	$433.70	$432.07	$431.42	$431.01	$417.68	$423.28
Help wanted advertising-Chicago (1969 = 100)[a]	1.98%	103	101	86	94	101	99
Help wanted advertising-St. Louis (1969 = 100)[a]	−2.99%	65	70	65	65	67	73
Retail Sales (in millions)[b]	−0.95%	$5,299	$5,458	$5,720	$5,288	$5,350	$5,347
Coal production (in thousands of tons)	1.99%	4,355	5,325	5,456	5,866	4,270	4,750
Petroleum products (in thousands of barrels)[e]	−6.93%	2,350	2,175	2,267	2,376	2,525	2,445
Vendor performance[g]	22.73%	54.0%	50.0%	55.0%	50.0%	44.0%	44.0%
Building permits (in thousands)							
Residential housing units	12.43%	4.992	5.141	6.093	6.362	4.440	4.012
Value of Residential housing	39.26%	$345,144	$320,542	$374,180	$374,451	$247,850	$223,064
Value of nonresidential construction							
Industrial buildings	6.42%	$36,706	$27,825	$49,990	$21,912	$34,493	$28,321
Office, banks, and professional buildings	−72.28%	$33,019	$38,042	$29,418	$32,654	$119,121	$22,439
Stores and other mercantile buildings	32.87%	$41,720	$31,538	$44,558	$36,378	$31,400	$17,680
Other	10.34%	$5,600	$7,953	$2,782	$3,903	$5,075	$6,273
Consumer price index (December 1977 = 100)							
North Central US[c]	1.09%	—	176.1	—	173.9	—	174.2
North Central/population more than 1,250,000[c]	1.52%	—	180.3	—	177.8	—	177.6
North Central/population 385,000 to 1,250,000[c]	0.87%	—	174.1	—	172.1	—	172.6
North Central/population 75,000 to 385,000[c]	0.65%	—	170.7	—	168.5	—	169.6
North Central/population less than 75,000[c]	0.53%	—	171.3	—	170.0	—	170.4
Chicago (1967 = 100)	2.07%	331.1	330.4	324.2	323.7	324.4	324.1
St. Louis (1967 = 100)	1.78%	325.6	—	318.6	—	319.9	—
		1986:I	1985:IV	1985:III	1985:II	1985:I	1984:IV
Personal income (in millions)[d,e,f]	4.81%	$169,220	$169,938	$165,608	$164,481	$163,275	$162,133
Per capita personal income[d,e,f]	3.79%	$14,477	$14,550	$14,189	$14,103	$14,009	$14,018

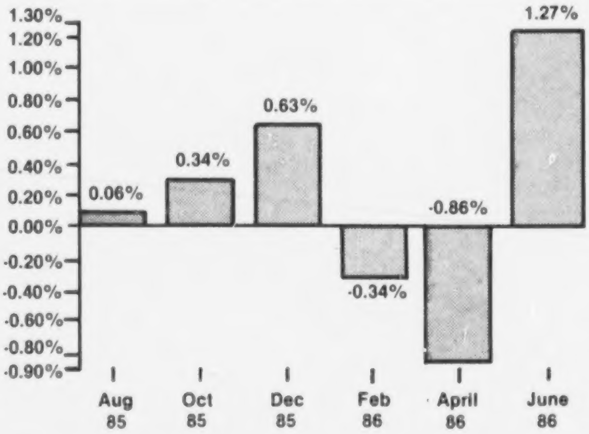
[a] The Conference Board, *Help Wanted Advertising*, July 1986. [b] Latest month projected by BEBR. [c] Percent change between June 1985 and June 1986. [d] Percent change between 1985:I and 1986:I. [e] Recent month is preliminary figure. [f] Seasonally adjusted at annual rates. [g] Percentage of companies receiving slower deliveries.

Changes in Various Consumer Price Indexes (monthly for Chicago, for all others, bimonthly)

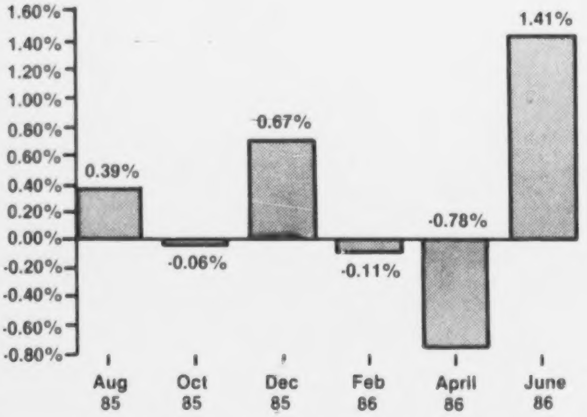
Chicago (1967 = 100)



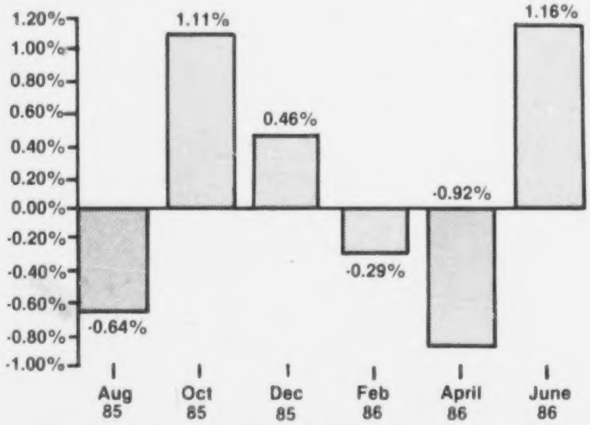
North Central US (December 1977 = 100)



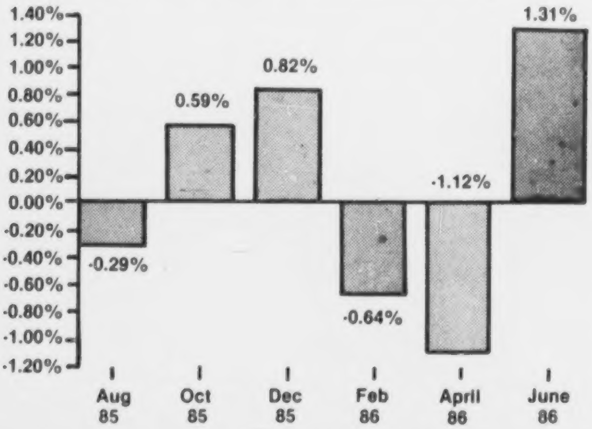
North Central US—Population over 1,250,000 (December 1977 = 100)



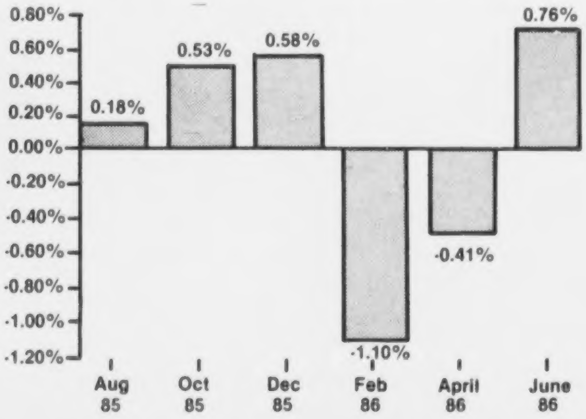
North Central US—Population 385,000 to 1,250,000 (December 1977 = 100)



North Central US—Population 75,000 to 385,000 (December 1977 = 100)



North Central US—Population less than 75,000 (December 1977 = 100)



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Illinois Economic Outlook

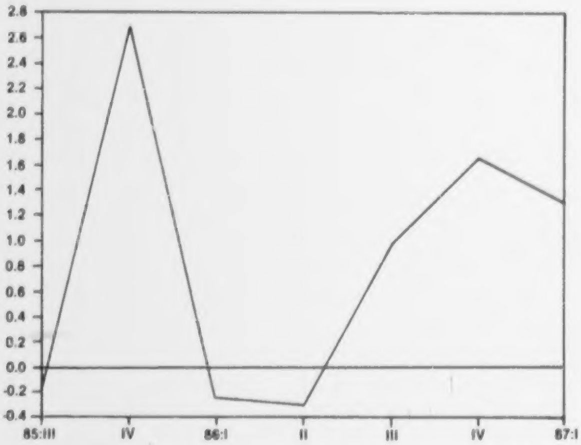
Illinois Personal Income (Millions of Dollars, Seasonally Adjusted Rates)

				History				Forecast			
	(1)	(2)	(3)	85:II	85:III	85:IV	86:I	86:II	86:III	86:IV	87:I
Total	173,206	169,220	-2.30	165,481	165,219	169,625	169,220	168,743	170,393	173,106	175,344
Total, Private Nonagricultural	103,896	103,712	-0.18	100,020	101,053	102,608	103,712	103,944	105,269	107,083	108,475
Mining	1,116	1,043	-6.54	1,172	1,129	1,103	1,043	1,070	1,030	993	978
Construction	6,116	5,711	-6.62	5,917	5,967	5,917	5,711	5,965	6,073	6,145	6,194
Manufacturing	29,386	28,426	-3.27	28,579	28,149	29,087	28,426	28,514	28,822	29,092	29,254
Nondurable Goods	10,967	10,728	-2.18	10,637	10,633	10,876	10,728	10,725	10,904	11,057	11,168
Durable Goods	18,419	17,698	-3.91	17,942	17,516	18,214	17,698	17,789	17,918	18,035	18,086
Transportation and Utilities	10,011	9,837	-1.74	9,493	9,868	9,916	9,837	9,772	9,784	9,927	10,037
Wholesale Trade	10,278	10,281	0.03	9,903	9,993	10,116	10,281	10,394	10,560	10,734	10,914
Retail Trade	10,771	10,589	-1.69	10,341	10,612	10,563	10,589	10,766	10,954	11,126	11,294
Finance	9,990	10,555	5.66	9,403	9,516	9,792	10,555	10,731	10,880	11,177	11,375
Services	26,289	26,928	2.43	24,839	25,503	25,785	26,928	26,732	27,165	27,889	28,429

(1)–Last Forecast for 1986:I. (2)–Historical Value for 1986:I. (3)–Percentage Error in Forecast.

Illinois personal income showed a slight dip of .24 percent in the first quarter of 1986, according to figures released by the Bureau of Economic Analysis. However, total nonagricultural personal income for the state had a 1.1 percent upturn in 1986:I, with most of the credit going to strong advances in the finance (7.8 percent) and service (3.7 percent) sectors. On the other hand, mining personal income fell by 3.5 percent, construction by 3.5 percent, and manufacturing fell by 2.3 percent. The Illinois Econometric Model performed well in terms of total personal income for the first quarter of 1986, with a forecasting error of 2.30 percent (an overestimate). However, there were larger errors in the mining (6.54 percent), construction (6.62 percent), and finance (5.66 percent) sectors. The model predicts better news for the last half of this year and the first quarter of 1987. As the graph shows, the growth rates of personal income will be between 1 percent and 1.6 percent per quarter over these three quarters.

Illinois Personal Income Growth Rates (in percentages)



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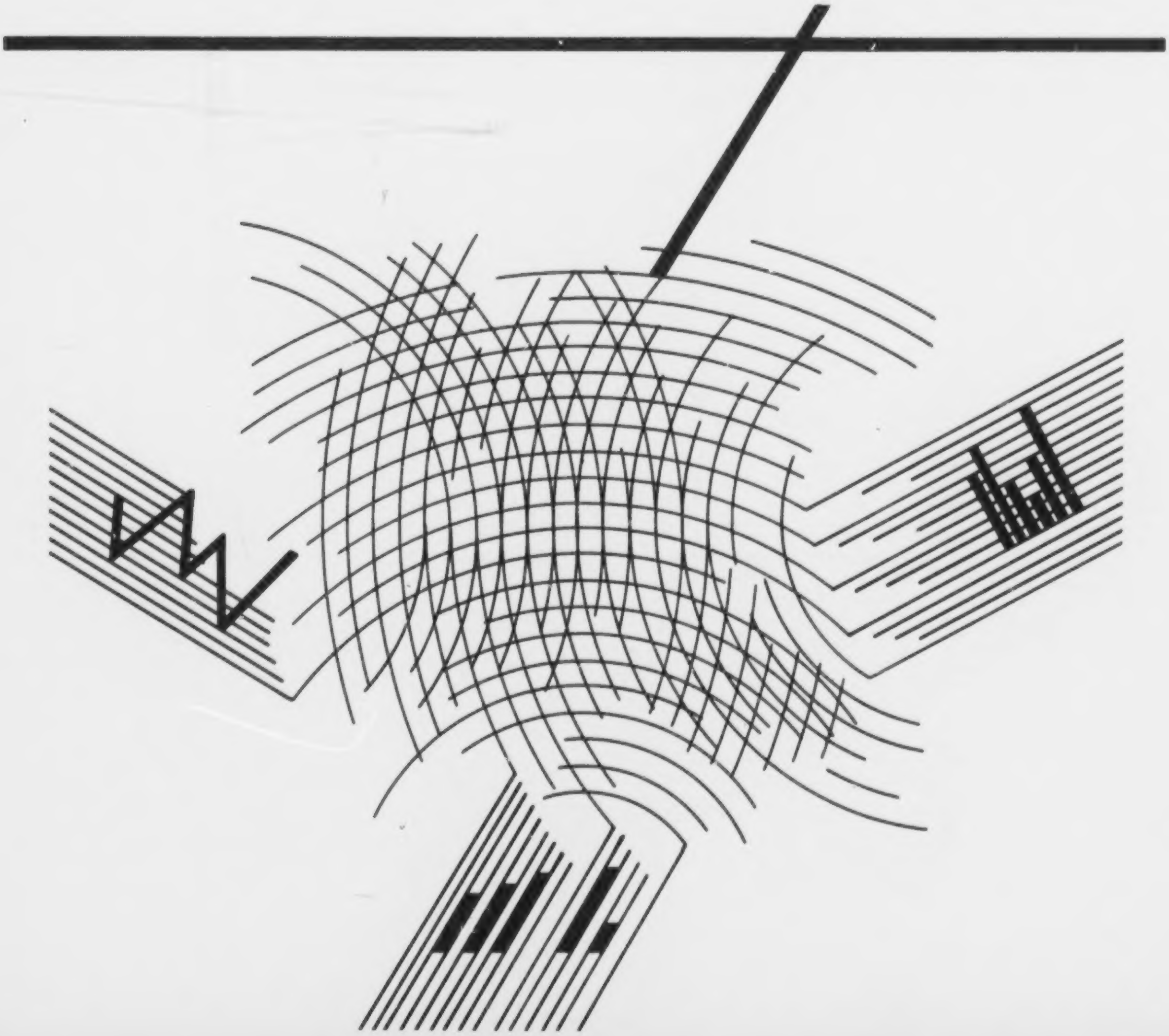

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WILLIAM R. BRYAN AND DEBORAH MUSTELL

The Rise and Fall of the Dollar

The tremendous rise in the value of the dollar in the early 1980s and its subsequent fall have elicited consternation from leaders in the United States and abroad. The dollar's rise began in mid-1980 and continued until 1985, increasing about 63 percent on a trade-weighted basis (see Chart 1). Following this increase, there has been a marked depreciation of the dollar, a decline of 22 percent.

This article presents a discussion of theory and contemporary facts relating to exchange-rates. First, there is a discussion of the theory of exchange rate determination. Next, the explanatory power of the theory is evaluated during two recent periods, one when the dollar was increasing, the other when the dollar was falling. Following this, the costs of an over-valued dollar are discussed from the viewpoints of the United States and of the world. Finally, there is a discussion of the adverse effects of a "too rapid" fall of the dollar.

Exchange Rate Theory

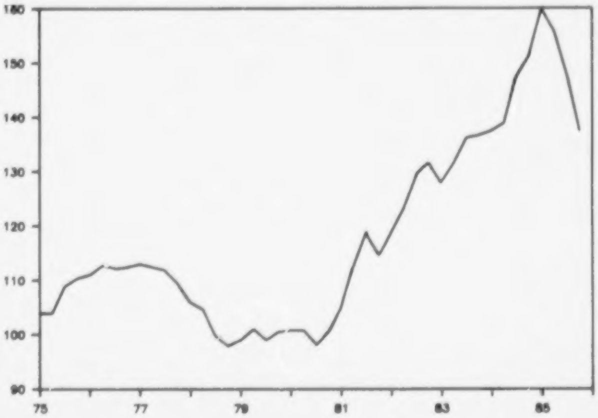
An exchange rate is simply the price of a foreign currency. In evaluating the supply and demand factors affecting the domestic price of a foreign currency, it is not surprising that important characteristics of a domestic economy are compared to corresponding characteristics in foreign economies. The characteristics toward which attention is focused typically include income growth, money growth, inflation rates, and interest rates.

Unfortunately, exchange rate theories are not unambiguous in their specification of the way these characteristics affect the domestic prices of foreign currencies. Higher rates of income growth in the United States could either increase or decrease the value of the dollar. For example, if US income growth is high, American investors may tend to retain funds in US markets to finance expanding expenditures. Otherwise, those funds might have moved to foreign markets. As a consequence of the reduced demand for foreign currencies, the value of the dollar in terms of foreign currency will tend to increase.

Alternatively, rapid income growth in the US is likely to induce American consumers and businesses to demand more goods, including imported goods. Thus, for example, to pay for Japanese imports we must buy yen with dollars, thereby decreasing the value of the dollar relative to the yen.

There is similar ambiguity in the impact of monetary growth on exchange rates. One view emphasizes the prompt effect on the domestic price level of higher domestic money growth. It is argued that rapid monetary growth will lead—via increased domestic inflation—to a decreased value of the dollar in terms of foreign currencies. An alternative view emphasizes the impact on interest rates of an increase in the money supply. According to this argument, rapid monetary expansion will lead to decreases in domestic interest rates. As a result, higher capital investment will be fostered. By virtue of increased capital expenditures, there will be greater productivity, lower domestic prices, and, at length, a higher dollar. Note that in either view the effect of money on exchange rates operates through money's impact on the price level.

Chart 1.



*MERM is the International Monetary Fund's multilateral exchange rate model used to derive the weights for calculating an effective, or trade-weighted, exchange rate.

Source: *International Monetary Fund* data tapes and *International Financial Statistics*, various issues, University of Illinois, Bureau of Economic and Business Research.

Relative inflation rates, as indicated, are regarded as a major determinant of the value of a currency. Importers and exporters maintain a condition referred to as purchasing power parity. If inflation in the United States is higher than in a certain given foreign country, a foreign importer of US goods would find it necessary to pay more and more to acquire the same quantity of US goods. If there were no inflation, or slower inflation, in the foreign country, domestic goods would become increasingly attractive. They would reduce their imports. But if the price of the dollar in terms of the foreign currency depreciated in value equal to the US inflation rate (or, to be more precise, to the differential in the inflation rates), prices on foreign goods would not show a relative decline.

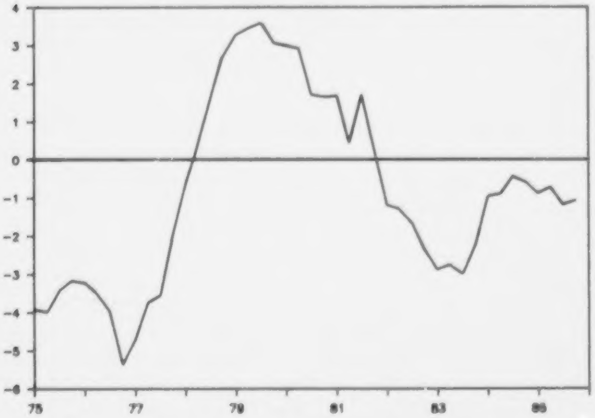
Finally, interest rate differentials are an often-discussed determinant of exchange rates. It is thought that the main impact of interest rate differentials is on financial flows into and out of the United States. If, for example, the rate on US three-month Treasury Bills is greater than the rate on comparable securities denominated in three-month sterling, it might be advantageous for a British investor to exchange pounds for dollars and then buy the US T-Bill. Assuming no change in the pound/dollar exchange rate over the three months, the British investor could collect interest paid in dollars, then repatriate to pounds. As long as an investor need not concern himself with future declines in the price of dollars in terms of pounds, there is an incentive to move funds abroad. If the interest rate differential between the US and Britain is greater than the expected decline in the pound price of dollars over the length of the asset, the British investor will choose the US financial assets.

It is possible to buy and sell foreign currencies for future delivery. Continuing the example discussed above, it is possible, and common, for a British investor to buy pounds (sell dollars) for delivery to him at the time the US Treasury bills mature. If he does this he will have locked in the price at which he repatriates his dollars into pounds. But as more and more British investors take this precaution, the price of future pounds is driven higher. As a practical matter, the dollar price of pounds in the futures market will rise to remove the advantage to the British investor associated with the interest rate differential. To the extent that expected depreciation equals the interest rate differential, there is covered interest parity.

Theory vs. Evidence

It is of interest to review experience with a view toward explaining major changes in the price of the dollar during selected periods from 1975 to mid-1986. As suggested earlier, two major movements literally leap out from Chart 1. These consist of the very substantial upward movement from 1980 to early 1985, and the subsequent sharp decline. Each of these periods is discussed with an eye towards evaluating the contributions of the quantifiable determinants discussed above.

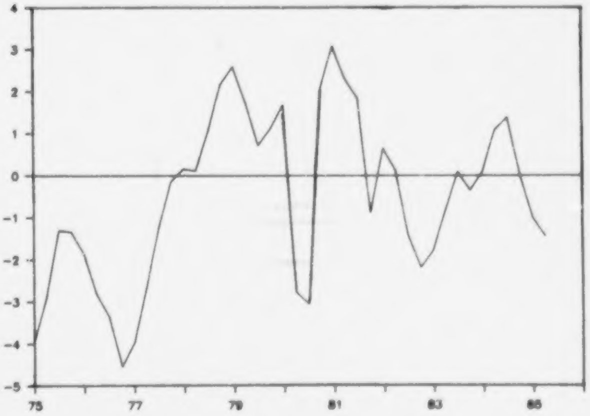
Chart 2.



[a]In this chart and charts 3–5, the weights were derived by dividing average trade volume in each country by the total average trade volume of these five countries. Inflation is measured by quarterly, year-over-year changes in the Consumer Price Index.

Source: *International Monetary Fund* data tapes and *International Financial Statistics*, various issues, University of Illinois, Bureau of Economic and Business Research.

Chart 3.



[a]Money market rate for France, Germany, Italy, Japan; Treasury bill rate for the United Kingdom, the United States. These rates were weighted as described for Chart 2.

Source: *International Monetary Fund* data tapes and *International Financial Statistics*, various issues, University of Illinois, Bureau of Economic and Business Research.

Chart 2 shows the inflation rate in the United States minus the average of inflation rates of the United Kingdom, France, Germany, Italy, and Japan (weighted by each country's proportion of the total average trade volume of these countries). Beginning in the 1979–1980 period, the differential between US and foreign inflation began to decline. By mid-1981, inflation in the US was lower than the inflation rates of these five countries. As theory would suggest, the decrease in this differential was accompanied by an increase in the value of the dollar (see Chart 1). The US inflation rate differential was at its maximum advantage in early 1983.

The facts relating to inflation rate differentials are not quite so kind in explaining the abrupt fall in the value of the dollar in early 1985 nor the continued sharp decline into early 1986. There was a marked narrowing in inflation differentials from mid-1983 to mid-1984, but the price of dollars did not begin to decline until six months later. Inflation in the United States has remained low relative to the weighted average of these other economies, and has been stable since 1985. Even so, the dollar has continued its downward trend. In short, it is difficult to argue that this variable accounts for recent changes in the US exchange rate.

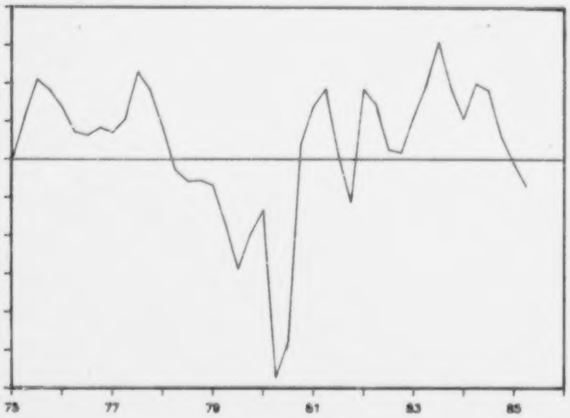
Chart 3 shows US short-term interest rates minus the short-term interest rates of the five countries studied (weighted as described above). During the 1979–1983 period, the inflation rate was falling relative to the rates of these major economies. The differential between US and foreign interest rates remained generally positive, fluctuating around zero. As a consequence, the differential between real interest rates—nominal interest rates minus inflation—rose from a generally negative position in the 1978 to early 1980 period to a generally positive position after late 1980. Chart 4 presents this weighted real interest rate differential. For the 1981–1985 period, real interest rates in the United States were higher than those abroad. Such a situation is consistent with enhanced foreign investment in US financial assets and a strong demand for the dollar. Again, reference to Chart 1 shows that the value of the dollar did increase as our interest rates (nominal and real) remained relatively high.

Interest differentials, both nominal and real, have fluctuated downward since mid-1984 and mid-1983, respectively. Neither of these declines coincides with the turn-around in US exchange rates.

Finally, beginning with the economic recovery in 1983, real income growth in the United States began rising relative to that of the five major economies studied here. Chart 5 presents the change in real GNP in the United States minus the weighted real growth rates in Germany, France, the United Kingdom, Italy, and Japan. The last upswing has been faster and more sustained than recovery in these countries, as shown by the positive real growth differentials. Improved domestic investment opportunities associated with the higher relative income growth in the United States may have served to divert funds away from foreign investment. In addition, foreign investors may have been attracted to a high-growth US economy. In combination, such factors contribute to an increase in the value of the dollar. As will be discussed later, the shift of funds to the United States on capital account is necessarily associated with a deterioration of the US trade balance.

There are determinants of exchange rates that are not readily quantifiable. During 1984, the value of the dollar remained high even though most of the differentials mentioned earlier had fallen. This situation could have resulted from a perception that US financial assets are less risky than those in other countries. It is argued that the United States is widely regarded as a safe haven—a no-risk place to invest funds.

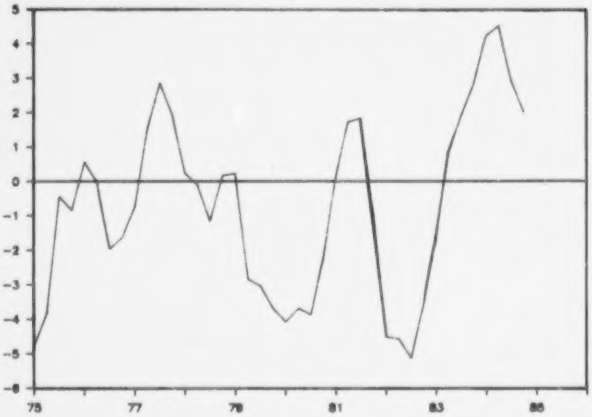
Chart 4.



*Real interest rates were calculated by subtracting inflation (as measured for Chart 2) from the short-term interest rates used in Chart 3. These were weighted as described for Chart 2.

Source: *International Monetary Fund* data tapes and *International Financial Statistics*, various issues; University of Illinois, Bureau of Economic and Business Research.

Chart 5.



*Real growth is the quarterly, year-over-year change in real income (1980 = 100). GNP and GNP data are seasonally adjusted annual rates. GNP used for Germany, Japan, and the United States; GDP for France, Italy, the United Kingdom. These were weighted as described in Chart 2.

Source: *International Monetary Fund* data tapes and *International Financial Statistics*, various issues; University of Illinois, Bureau of Economic and Business Research.

Effects of an Overvalued Dollar

There is a view that the dollar has been overvalued for many of the past several years. As Chart 6 shows, US exports minus US imports as a percent of GNP began falling more steeply after 1983 when the value of the dollar kept increasing. Even while this was occurring, it was argued that, at length, the value of the dollar would fall. Indeed, it was argued that it would fall as a consequence of this imbalance, thereby increasing exports and decreasing US import demand. If so, the process will have been self-correcting. Nonetheless, there are real costs to our society of this overvaluation. US industries that depend on foreign demand or that compete with foreign substitutes—such as agriculture, forestry products, mining, and many in manufacturing— have experienced unemployment of labor and capital equipment. Beyond that, foreign competition has invaded US markets traditionally dominated by domestic industry—such as autos. To reemploy these resources is not costless. It requires retraining of personnel, relocation of people and machinery, refitting of equipment (if possible), and construction of new equipment. The high unemployment experienced in the "Rust Belt" states of the upper Midwest may have resulted, in part, from the high value of the dollar.

There are beneficial aspects of a highly valued dollar. A movement of funds into the US on capital account can be diverted to several uses. Foreigners may invest in short- or long-term financial assets—or, a capital account inflow can take the form of long-term fixed

Chart 6A–6F.

Chart A. United States

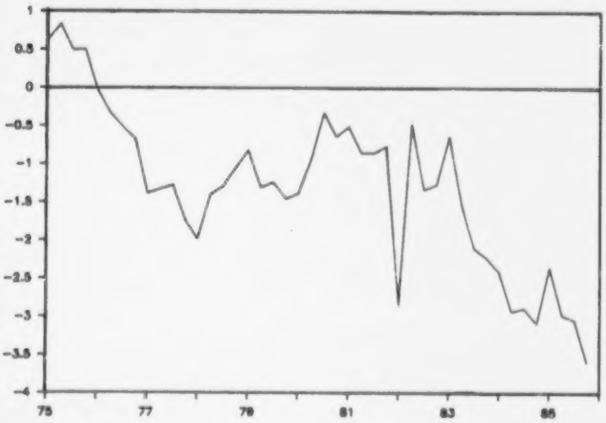


Chart B. France

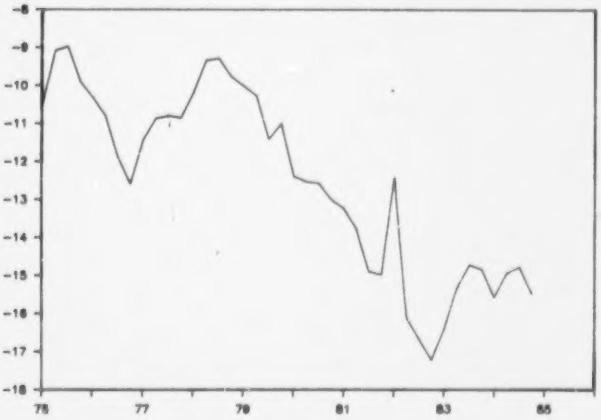


Chart C. Germany

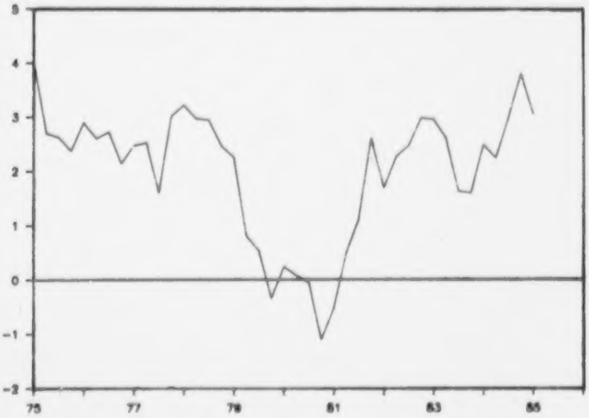


Chart D. Italy

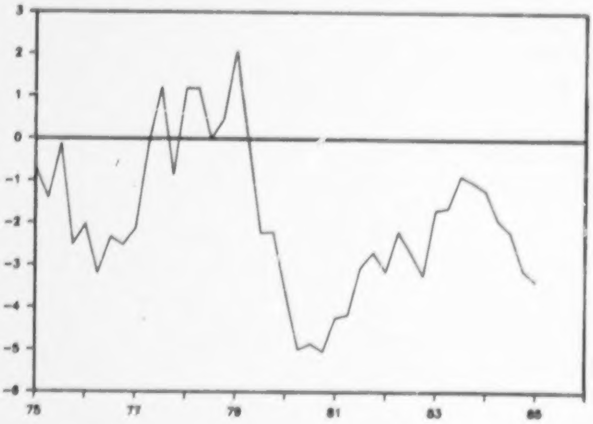


Chart E. United Kingdom

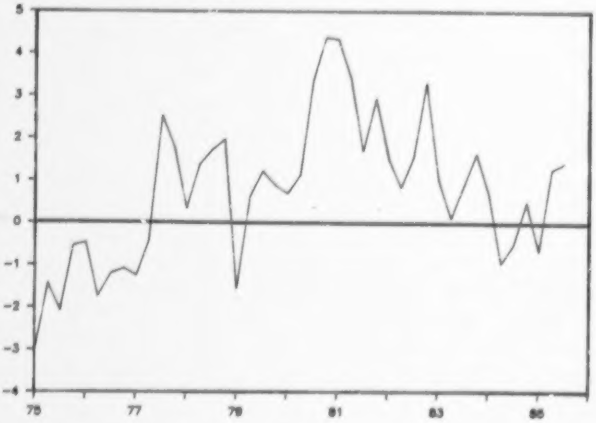
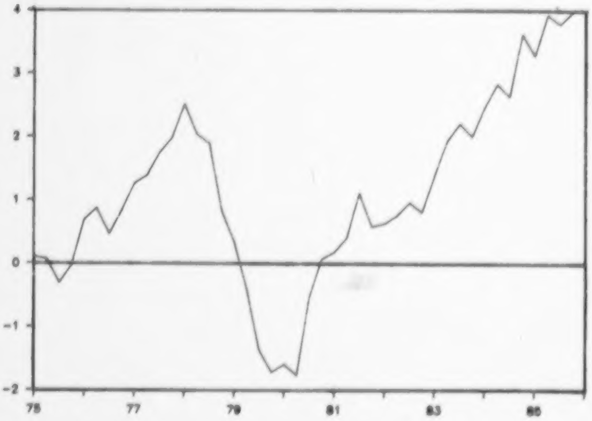


Chart F. Japan



Source: *International Monetary Fund* data tapes and *International Financial Statistics*, various issues; University of Illinois, Bureau of Economic and Business Research.

investment. Such choices can have an important effect on the future of the economy.

For example, if Japan uses the dollars it acquires from its export surplus to build a new automobile plant in the US, there will be an increase in this nation's tangible capital stock, plant and equipment, albeit owned by foreigners. This will create new jobs to produce goods, and thus benefit the US economy. Further, if the Japanese investors decide to leave the

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*Exports, imports, and GNP or GDP are quarterly data at seasonally adjusted annual rates. Nominal GNP used for Germany, Japan, the United States; nominal GDP for France, Italy, the United Kingdom.

US market, they cannot just move the plant back to Japan.

But, there is a view that much of the capital inflow in recent years was used to finance the federal budget deficit. Some argue that foreign funds invested in such debt can lead ultimately to problems. If, en masse, foreigners subsequently decided they no longer wanted to hold the Treasury Bills they could sell them in large blocks, thereby driving the price of the Bills down and yields up. It is important to point out that such developments can affect any financial asset—common stock, government or corporate bonds. Nor does who does the buying or selling make much, or any, difference. Any attempt by US citizens or noncitizens to liquidate holdings of financial assets would have similar effects on the market— prices would tend to fall and yields would increase. In the end, all assets are always held by someone; efforts to shift from them will tend to drive prices down, and conversely. Regardless of the source of the liquidation, the resulting increase in interest rates can have adverse effects on the economy.

In a somewhat different vein, it is argued that problems will emerge when (if) the capital inflow slows or stops. Following such a development, there will need to be a time of austerity—by both the federal government and consumers. It will be necessary to repay the foreigners by exporting more than we are importing, thereby reducing the future consumable product of the United States. Presumably, to stretch out the logic of this argument, we would be better off to export more currently, thereby reducing the consumable product now.

From a European or Japanese viewpoint a high dollar can be regarded as desirable or undesirable, depending upon the context within which it is considered. Because more European or Japanese exports are demanded by the United States, the economies of these countries are stimulated. But many of their imports (especially petroleum) are denominated in dollars. If the value of the dollar is high, they must pay more of their currency for the oil they import; thus, their inflation rate may increase.

Effects of a Falling Dollar

Some have defined a "too rapid" fall of the dollar as more than 10 percent in one year. The dollar has fallen by about 22 percent on a trade- weighted basis since early 1985, which worries policymakers in the US and abroad for a number of reasons. First, a rapid decline in the dollar could cause investors to lose confidence in dollar- denominated assets. As discussed above, if that happened and they sold these financial assets, interest rates could be driven higher.

Pressing this argument further, it is suggested that higher interest rates might tend to reduce fixed investment and consumer demand, possibly contributing to a recession in the United States. Whatever the underlying merit of the argument, so far these developments do not seem to have occurred. Interest rates in the United States have not risen; they have declined.

A second line of argument suggests that a rapidly falling dollar could reignite US inflation as the cost of imports increases, triggering increases in prices of domestically produced goods competing with those imports. This fear, too, does not yet seem to be borne out. Inflation in the US has remained low.

Finally, and most important from the viewpoint of our trading partners, a decline in the value of the dollar is expected to bring about an eventual decrease in demand for imports into the United States. As our trade deficit falls—because of declining imports and rising exports—our trade partners' corresponding trade surpluses are expected to shrink. US demand for foreign goods helps to keep the world economy growing, and a decrease in this demand has a major impact on these separate economies. Furthermore, many developing countries have relied on trade surpluses with the United States to finance external debts. With a fall in the demand for their exports, these countries could experience debt crises similar to those experienced by other developing nations.

There is also a bright side to a lower dollar. As indicated, it is anticipated that the United States will import fewer goods and United States consumers will demand domestically produced substitutes. At the same time, the United States is expected to export more as US prices become relatively cheaper to consumers abroad. Such developments would tend to help national income and employment. In contrast, protectionist measures recently discussed in Congress are costly to US consumers and foreign relations. Hopefully, such pressures will wane as the dollar moves lower and US industry becomes increasingly competitive.

Conclusion

This article has discussed alternative theories on the behavior of exchange rates and has tested the ability of those theories to explain economic events against the experience of the 1980s. The exchange rate theory sketched here is limited in its ability to explain the empirical experience of the current decade. In part, the weakness of the theories may lie in their exclusion of unmeasurable factors affecting the value of the dollar.

Arguments were presented that marked and sustained movements in exchange rates can be detrimental to the economy. The transition costs of pronounced and prolonged movements in exchange rates force difficult adjustments on various sectors of the economy. There is a widely held view that more rapid, self-correcting adjustments would serve to decrease transition costs. Alas, rapid, self-correcting adjustments have not occurred. But it is hoped that the decline in the dollar over the last 18 months will succeed in reversing the adverse consequences of previously experienced overvaluation. If so, it can help the United States and, therefore, the world economy. It is plausible to hope that the devaluation can bring the parts of the whole into a better balance, thereby fostering an increasingly stable situation.

JAMES R. MOORE

Secondary Coal Recovery: A New and Struggling Industry

Refuse surrounding active and abandoned coal mines in the state of Illinois contain waste volumes ranging from a low of 20 tons to a high of 20 million tons. Collectively, the Illinois coal waste deposits (resulting from inefficient cleaning methods of the past) contain an estimated 500 millions tons of refuse. Research indicates that, on the average, 26 percent of the waste is coal. Thus, the Illinois deposits contain over 125 million tons of coal, which equals two years of current Illinois coal production, and, at current prices, represents a value of $3.2 billion.

Secondary Coal Recovery Prior to 1980

Although major coal companies began recovering coal fines (28 mesh and below) in the late 1940s, serious commercial efforts directed at recovering coal from gob deposits (mine waste containing coal above 28 mesh in size, rock, pyrite, wood, metal, paper) in the state of Illinois did not begin until the 1970s. Efforts at that time were concentrated in the counties of Williamson, Saline, and Franklin in Southern Illinois. While these early recovery efforts indicated some opportunities for handsome profit, operators were plagued with the crucial problems of inexperience, inadequate funding, a reduced coal market, inefficient processing equipment, a lack of planning and marketing know-how, and meeting the newly imposed permitting requirements of the "Surface Mining Control and Reclamation Act of 1977." The pioneering firms in this new and struggling industry were small and, by and large, lacked the ability to deal effectively with the problems. Economic data compiled on the early secondary coal recovery operations point up the problems.

Plant Efficiency

In 1979, I surveyed the operating secondary coal recovery plants in Franklin, Williamson, and Saline counties under a grant from the Coal Extraction and Utilization Research Center at Southern Illinois University. Data in Table 1 highlight efficiencies of the seven plants. Analysis indicate efficiency variation from 33 percent to 80 percent of the possible feed capacity. Differences are explained by variations in the feed material, experience of the operators, and the processing equipment. The average plant was producing at a rate of about 260,000 tons of clean coal per year.

Six of the seven operators in the three-county study used the auger flotation process for separating the coal from refuse, and one used cyclones. The auger operation used vibrating screens for drying and the cyclone products were dried in centrifuges. Reject material from the auger flotation plants contained 40 percent coal, most of which was less than 28 mesh, and the cyclone plants' reject material contained less than 5 percent coal. The average recovery rate of all plants was 26 percent.

Investment and Operation Cost

Plant investments ranged from $90,000 to $1.2 million, and no correlation exists between investment and profit margin (see Tables 2 and 3). Royalties paid on the finished product ranged from $1.50 to $4.00 a ton, but the higher price was paid between two companies that were owned by the same principals. The length of life of a secondary coal recovery plant is limited because after the gob pile is processed the operator usually moves on to another site or goes out of business. Transporting raw materials to a cleaning plant is normally not economical, although two of the plants moved their gob eight miles at a cost of $4.50 a ton. The average length of operation in this survey was 2½ years. One plant operated three shifts, one operated two, and the other five operated single shifts. The average crew for a shift comprised three men and a supervisor, and they lost one hour a shift for repairs. A crew needed a minimum of one loader-scraper, two end-loaders, a dozer, and a backhoe to operate a recovery plant.

Lessons from the 1970s

All gob processing plants constructed during the decade of the 1970s were either salvaged or abandoned by 1981. Secondary coal recovery operators learned several important lessons during this early stage of experimentation. Market needs should be carefully analyzed, and the best marketing strategies for satisfying those needs should be determined. Technology used for separating coal from other gob materials was not cost- and quality-efficient. Needs for operating capital should be determined using long-range planning techniques. A careful selection of employees and providing adequate training are necessary for insuring proper maintenance and continuous output. Cooperative relations should be maintained with the Department of Mines and Minerals and the Environmental Protection Agency.

Secondary Coal Recovery: 1980–1985

Knowledge and experience gained by secondary coal recovery pioneers of the 1970s ushered in new investors, more sophisticated technology, and

Table 1.

Plant	Estimated feed capacity in tph	Average feed capacity in tph	Average finished product in tph	Finished Product Analysis			
				Btu	Moisture %	Ash %	Sulphur
A	120	40	12	12,000	9	9	2.5
B	35	20	6	11,400	9	9	2.8
C	300	120	28	10,600	12	12	.85
D	300	112	25	11,500	9	14	2.68
E	100	80	16	11,500	10	10	.85
F	100	60	18	9,260	18	13.9	1.02
G	120	80	24	10,483	12.8	12	.89

Table 2.

Plant	Investment in plant and equipment	Average processing cost per ton of recovered coal	Available colliery reject owned or under contract	Purchase price if owned	Royalty fee for product
A	$1,200,000	$18.00	300,000 tons		$3.00/ton
B	90,000	8.00	2,500,000	N/A	
C		14.00	1,500,000		$4.00/ton
D	375,000	6.00	1,500,000		10%
E	500,000	20.00	4,000,000		$1.50/ton
F	275,000	15.00	640,000	$52,000	
G	800,000	15.00	660,000	$53,000	

Table 3.

Plant	Potential Annual Product in tons	Price f.o.b Mine	Gross Sales	Total Costs	Estimated Potential Profit	Return on Investment Averaged over 3 Years
A	25,200	$22.50	$ 567,000	$ 529,000	$ 37,800	9%
B	6,300	25.00	157,500	50,400	107,100	357
C	88,200	18.75	1,653,750	1,587,600	66,150	316
D	26,250	20.00	525,000	210,000	315,000	252
E	16,800	20.00	336,000	361,200	-25,200	loss
F	18,900	20.00	378,000	283,500	94,500	104
G	25,200	20.00	504,000	378,000	126,000	47

Table 4.
A Comparison of Secondary Coal Recovery Operations in the 1970s with that of the 1980s

Factor of Comparison	Secondary Coal Recovery in the 1970s	Secondary Coal Recovery in the 1980s
Average annual plant tonnage potential	25,000	300,000
Average price per ton	$20 f.o.b. mine	$23 f.o.b. mine
Potential gross sales	$500,000	$6,900,000
Average annual operating costs (including debt service, and reclamation)	$350,000 ($1/ton)	$5,100,000 ($17/ton)
Average potential profit	$150,000	$1,700,000
Average investment per plant	$520,000	$2,100,000
Product quality	Inconsistent	Relatively Consistent
Industry image	Poor-Fair	Fair-Good
Market	Industrial - Utility	Industrial - Utility Government Agencies
Management orientation	Production	Production - Semi-Marketing

experienced employees in the 1980s. Three new $1.5 million plants consisting of a combination barrel washer, multi-stage cyclones, centrifuge dryers, sizing screens, radial stackers, and computerized control systems began production during the summer of 1982. The new plants were designed to be cost and quality efficient. Another similar plant was brought on line in 1984. One new auger flotation plant was completed in 1981, and a new diester plant was completed in 1983. One of the plants abandoned in 1980 was modified and readied for 1985 production. A new plant incorporating the most advanced technology is scheduled for completion this year. The new plant to be located in Williamson County will use heavy media, multi-stage cyclones. While this new activity suggests industry growth, operators continue to be troubled with the same problems of the 1970s.

A comparison of secondary coal recovery operations in the 1970s with those of the 1980s show the changes (see Table 4). Production capacity of the new plants is 12 times that of earlier counterparts. The increased volume affords owners the opportunity to bid on larger-size contracts. Because of relatively easy adjustments through computerized and manual techniques, the most important characteristic of the new technology is the ability to produce a more consistent quality. This attribute overcomes the buyers' major criticism of earlier operations and should serve to improve the industry's image. Further analysis indicates a 5 percent increase in price, a 1,100 percent increase in production potential, a 20 percent increase in costs, a 300 percent increase in investment, and a 100 percent increase in return on investment. One might conclude that secondary coal recovery is an attractive investment. However, evidence of the past suggests that the inexperienced should approach the industry with extreme caution.

Toward the Future

In 1984, the small and struggling secondary coal recovery industry accounted for an estimated .003 percent of total US coal production. At that rate, it will take the industry 500 years to recover the coal from existing refuse deposits. Growth, and even survival, of the industry will depend on the operators' ability to deal with two major obstacles. First, there are the high and sometimes restrictive entry and exit costs imposed by federal and state regulations. Second, the mandate by the government to reclaim all abandoned mine sides. This program, which is administered by the Abandoned Mine/Land Reclamation Councils in the respective states, calls for covering the gob deposits with sufficient enough dirt for sustaining a permanent vegative cover. For example, the state of Illinois is spending approximately $14 million annually. Funding for this program comes from taxing underground mines 15 cents/ton and surface mines 35 cents/ton. Removing the dirt will add additional costs to the secondary coal recovery operation.

Recommendations

Scientific research data is vital to improving processing efficiencies. Coal recovery from colliery reject deposits is a new industry and deserves immediate professional and scientific attention. Land reclamation, employment opportunities, business profits, and providing a valuable energy resource are basic benefits to be derived. Optimum achievement of these benefits calls for orderly growth and development of the secondary coal recovery industry.

Specific needs include (1) the establishment of a secondary coal recovery council comprised of one representative from each coal-producing state. Authority and resources should be given the Council for awarding research grants, processing and forwarding small business loan requests to appropriate agencies on behalf of qualified secondary coal recovery operators, establishing and maintaining a strong monitoring and accounting program, and promoting the secondary coal recovery industry; (2) initiating product planning research, which includes marketing, purchasing, engineering, production, design, and finance expertise; (3) developing an abandoned mine directory giving location, owner's name and address, quantity, and quality of colliery reject; and (4) conducting a market segmentation study for establishing optimum use and profit potential for secondary recovered coal.

Cooperative efforts is needed. Major coal companies, coal research centers, coal associations, and the Department of Energy are basic constituencies that must work together toward making secondary coal recovery a dynamic and successful industry.

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SALIM RASHID, JOHN T. SCOTT, JR., SARWAR JAHAN

The Effects of Size and Tenure on Farm Efficiency

In the history of agriculture, two issues have cropped up with considerable regularity, and are still very much alive today. The first relates to whether large farms or small farms are more efficient. The second issue concerns the most productive forms of tenancy, that is ownership, rental, or share-leasing. This study addresses these issues in the context of Illinois agriculture, applying methods established by earlier researchers to Illinois data.

Two features of the data are distinctive. First, the data include experience from four years. Such data permit tests for the stability of established relationships over time. Second, the data depict experience from a large sample; in a given year there were over 650 farms in the data base.

The study is divided into two parts. In the first part, there is an examination of the efficiency of the sample Illinois farms across large and small farms and between different tenure types. In the second part, there is an investigation of the primary determinants of the decision to lease land (in or out).

The Data

The data stem from a subset of farms from the Illinois Farm Business Records. These records are kept in cooperation with the Illinois Farm Business Management Association and the Department of Agricultural Economics at the University of Illinois. The data are for the years 1980–1983, consisting of farms with usable records for both the tenant and landlord. The data are obtained from the farm business records of about 500 Illinois farms for each of the years. The farms are located in the counties of Adams, Boone, Brown, Bureau, Carroll, Cass, Champaign, Clark, and Coles in northern and central Illinois. These counties are well dispersed, so we can reasonably hope to average out local effects. The Farm Business Records data base is not itself a random sample. Hence, there was no effort made to pick a sample using randomization procedures. Instead, the data choice was associated with various fieldmen who were spread out over North-Central Illinois.

The farms can be cross-classified according to both ownership and forms of tenure. There are three categories of owners: pure owners, who own all the land they farm; part-owners, who lease part of the lands they farm; and pure tenants, who lease practically all the land they farm. The pure owners, who were dropped from further consideration, formed about 15 percent of the sample. There are various tenure forms, including mixed arrangements for dairy farming and other types of livestock farming. To increase homogeneity, the sample was limited to the records of crop farmers with crop-sharing (on a 50–50 basis) and cash renting. The categories consisted of (1) part-owner crop-share, (2) part owner cash lease, (3) pure tenant crop-share and (4) pure tenant cash lease.

There was an important study of the relative efficiency of large versus small farms, as well as the effect of different leases upon agricultural efficiency (with emphasis upon the former). This study was based on data from a sample of Illinois grain farms for the year 1977. Two tentative conclusions were articulated. First, it was found that smaller farms did not show marked signs of inefficiency. Second, it was suggested that farmers who leased land appeared to be more efficient than those who did not. The importance of these findings lends urgency to reexamination of the issues for a large data base and for an extended period of years.

The technical aspects of the study are summarized in the Appendix. We find considerable evidence to confirm the results discussed above. In particular, there is little sign of increased efficiency on the part of farms over 500 acres. However, we find that the superior efficiency of leasing is visible only for 1980 (and perhaps 1981). It would appear that the considerable economic distress of the years 1980–1982 served to weed out the owner-operated farms that were not relatively efficient. Our results in this area suggest that the earlier work needs to be modified and reinterpreted.

A book about agriculture in India, *Palanpur*, by C. Bliss and N. Stern provides a useful framework and starting point for considering the *short-run* leasing decision. Bliss and Stern argue that tenancy provides a way for those with excess (or deficient) land, labor, and equipment to find mutually advantageous bargains. Someone who has more power or equipment than can be used on his own fields will look around for land to cultivate and those who lack skill or desire to cultivate their own lands will want to rent out their lands to such people. Both farming ability and power or equipment are inputs that can be considered as fixed in the production process.

The tenancy decision is essentially one of finding the optimal combination of variable inputs to maximize profits. In the Indian context, it was relatively easy to pinpoint the critical fixed inputs. Social norms enforce the working of the family as a unit. Within this context, it makes good sense to think of farmers wishing to cultivate amounts of land that provide employment for the entire family. By the same token, bullock-power is a critical source of power, without which successful cultivation simply cannot go on. To assess by analogy that similar factors should also count in the United States perhaps requires no further explanation. The family may play an equally important role in Illinois agriculture. Also, in view of the large extent to which Illinois farms are mechanized, it is clear that successful cultivation is heavily dependent upon machinery.

The statistical work was designed to test the following proposition: The amount of farm land leased is positively related to the capital equipment owned and the amount of available unpaid labor. But, in contrast, the amount of land that is leased is negatively related to the amount that is owned.

Our expectation was that capital owned would be as influential in Illinois as it was in *Palanpur*. This was confirmed by the statistical work undertaken with data from all tenure forms. In light of the high degree of mechanization in Illinois, our second expectation was that unpaid labor, a proxy for family labor, would be much less important, or perhaps even insignificant. Somewhat to our surprise, unpaid labor was almost always statistically significant. If our results are substantiated by further research, two interesting results would follow. First, theorists have long worried about the theoretical indeterminacy of the amount of land leased. Our results show that there may indeed be an "optimal" amount of land to lease. Secondly, we see no reason to consider sharerenting as being anything other than a market contract, largely independent of "stages of development." The results of this study suggest a much closer parallel between developed and developing agricultures with regard to the effects of capital and unpaid labor than hitherto has been reported.

There are two general points about the market for farmland that arise from this study. First, leasing is a valuable means of achieving efficient farm organization. Second, it would appear that significant indivisibilities are present in the capital markets. We discuss each in turn.

Farms that are fully owner-operated give indications of being inefficient compared to other lease types. If we examine what has happened in Illinois from the census data on the different lease types, we find some fairly dramatic changes that would corroborate our findings that leasing in some land is more efficient than fully owning only.

There has been a significant increase in the proportion of farmers who are renting additional land (the part-owner operators) from 20.4 percent to 1950 to 36.3 percent in 1982. The total size of farm they operate (both rented and owned) land has significantly increased relative to those who farm only the land they own (full owners). There has been an increase from 227 acres in 1950 to 468 acres in 1982. Given the finite nature of available farmland, as farms increase in size, the expansion must be at the expense of others. Some of the full owner operators have lost out, but the major group of losers is the tenant group, the group that rents all the land they farm.

The full renter is at a distinct disadvantage to the part-owner who has a secure tenure base of operations on his own land. The part-owner can wait and observe when land becomes available for rent and can aggressively bid in the rental market. However, if a full tenant loses his lease, he may need to leave the community to find other land. Alternatively, he may find it necessary to quit farming. Clearly, based on the census data, tenants have been quitting farming.

It has not been possible to account for personal characteristics of the farmers who expand relative to those who do not. There are substantial differences among the rates of expansion among farmers even though they may start out with seemingly the same assets of labor, training, capital, and level of economic efficiency.

In measuring economic efficiency, we have made the usual assumption that the entrepreneur wants to maximize profits. Our findings are based at least in part on this assumption. However, some farmers who speculated on land purchasing rather than on renting or leasing additional land are now concerned with current financial problems. If, because of personality or location within a geographically restrictive leasing and ownership pattern, a farmer views his expansion potential as limited, he may not choose the traditional unrestricted profit maximization approach. Instead, with his limited fixed resources, he may adopt a cost minimization or resource conservation approach. Such constrained behavior will result in inefficiency and may explain part of the differences in efficiency between the smaller owner-operated farms and the larger part-owner farms.

The part-owner farms have been able to expand because expansion through renting additional land (where this is geographically possible) is more profitable for the farmer operator than owning. Such is the case even though, from the standpoint of the whole operating unit, it may be more efficient in terms of variable costs.

A comparison of the rental market for farmland and the ownership market offers some understanding of the situation. The annual rent for farmland, contrary to what we sometimes find with other income-producing real estate, has nearly always been substantially less than the cost of owning farmland on a current account basis. There are several reasons for the willingness of farmers to pay more for land than the current return from rent. Reasons include reduction of tenancy risk, the pure utility of land ownership, and the expectation of increased rent and increased capital value.

During the stable period from 1959 through 1972, the data show that the cost of ownership was about one-third to one-half greater than the cost of rental. During the land boom after 1975, this relationship became quite different and is only now working back toward the longer-term relationship. Setting aside the possibility of a marked and prolonged period of deflation, it is doubtful, given the desire to own land, that the cost of ownership will ever be less than rent.

Whether the apparent inefficiency of owned farms results from the smaller scale at which such farms operate, or whether the seeming inefficiency is compensated for by the benefits of ownership are topics for further consideration.

As suggested, it would appear that there are significant indivisibilities in the capital market. If capital markets functioned smoothly, in the textbook sense of the term, we would not expect capital possessed to influence leasing significantly. Despite the existence of some credit organizations specifically designed to meet the needs of farmers, it would appear that capital is very much a "lumpy" input. This feature obviously influences the manner of analyzing the Illinois farm economy because it tells us that long-run equilibria, that is with full adjustment, are very seldom reached. It would be useful for policies and prescriptions relating to the structure of the farm economy to take this into account. Needless to say, this is not a totally new point, but it bears repetition in light of our findings.

Appendix

The Garcia, Sonka and Yoo (1982) (GSY) study used a standard profit function that is linear in logarithms for most variables and is based on the assumption of a Cobb-Douglas production function. To enhance the efficiency of estimation, input demand functions are jointly estimated along with the profit function. To allow for correlated errors between equations, Zellner's method of seemingly unrelated estimation is used. The basic idea can be summarized as follows. A linear regression estimates the variable profit per farm as a function of the following variables: (1) a dummy variable for small farms that should have a zero coefficient if there is no difference in the relative efficiency of large vs. small farms (700 acre cutoff); (2) the monthly wage rate for hired labor per farm; (3) total wage bill for hired labor per farm; (4) cash expenditures for variable inputs per farm; (5) months of operator and family labor available per farm; (6) value at nonland capital available per farm; (7) acres per farm; (8) soil productivity index; (9) ratio of soybean to corn acreage; (10) a regional dummy variable; (11) a large farm dummy variable with the same interpretation as (1). The justification for including these variables is quite standard and the reader is referred to GSY for details.

It should be pointed out that, partly for theoretical reasons and partly for practical ones, some of the variables used in the GSY study are excluded in our study. A limitation common to both studies lies in the use of expenditures on variable inputs, a practice that captures both price and quantity effects. Because price and quantity effects can offset or even negate each other, the sign of the regression coefficient on such variables is unclear on a priori grounds. Finally, it should be noted that tests of efficiency between large and small farms will obviously be sensitive to the cutoff point chosen between large and small farms. In the previous study a 700-acre cutoff on the basis of Wilken and Kesler (1978); their hypothesis was tested also for 500 acre and 400 acre cutoff points. The tests appeared to become sensitive at the 400 acre mark. As 1980 and 1981 were very difficult years for farmers it was decided to use 500 acres as the dividing line between small and large farms. For the sake of completeness the second test was run with the 700-acre cutoff point.

Two regressions were run, corresponding to Models I and II from the GSY previous study. Model I has already been described above. Model II utilizes a method to take account of ownership. The variable profit per farm is modeled as a function of: (1) the proportion of farm income that is obtained from the operator's own farm, (2) variables 2 through 10 from the previous model. The data were initially tested to see if the profit functions for small and large farms differed only by a multiplicative constant. The data for 1980, 1982 and 1983 passed this test while that for 1981 did not. Hence 1981 was dropped from the sample and examined separately. Our fits are generally reasonable but the sign of Cash Operating Expenses is negative, suggesting that the price effects have outweighed the quantity effects in producing this result. We limited ourselves to tests of relative efficiency. These show that, despite the several adjustments that have been made in these difficult times, there is no evidence that small farms, whether taken at the 500-acre or the 700-acre cutoff point are less efficient than the large farms. The effect of leasing is surprisingly strong in 1980 and 1981 when the t-statistic is highly significant.

Salim Rashid is professor of economics and John T. Scott, Jr. is professor of agricultural economics at the University of Illinois, Urbana-Champaign. Sarwar Jahan is in the Center for Governmental Studies, Northern Illinois University, DeKalb, Illinois. This study was funded in part by the Office of Real Estate Research, University of Illinois at Urbana-Champaign.

New Publications Soon Available

Available soon from the Bureau of Economic and Business Research, the 1987 *Illinois Economic Outlook* and a new *Illinois Statistical Abstract* containing economic data from 1979–1984.

The 1987 ***Illinois Economic Outlook*** contains articles on pertinent components of the Illinois economy plus quarterly forecasts of employment, personal income by major sector, and hours worked and hourly wage paid. Articles include population, financial services, manufacturing, employment, real estate, education, transportation, trends in economic development, state revenues and expenditures, exports, agriculture, and Illinois econometric forecast. The cost will be $2.50. The 1986 ***Illinois Economic Outlook*** continues to be available.

The ***Illinois Statistical Abstract*** provides over 650 pages of statistics on Personal Income; Transfer Payments; Farm Income; State Taxes; Banking and Prices; Manufacturing (with information on large and small establishments, employers, payroll, production employees, hours and wages for production employees, value added by manufacturer, cost of materials, value of shipments, and new capital expenditures); Service Industries; Building Permits; Employment; Employment, Hours, and Earnings; Labor Force Statistics; and Population. These data will be useful to faculty and students, newspapers, state and local government agencies, businessmen, lawyers, accounting firms, management firms—in short any one seeking market or location information. The book will be available in paperback ($25), and users with heavier analysis demands will be able to purchase the book on diskette ($40).

For further information about these publications, contact the Bureau of Economic and Business Research, University of Illinois at Urbana-Champaign, 1206 South Sixth Street, Champaign, IL 61820 (217-333-2330).

Illinois Business Indexes

Beginning in this issue of the *Illinois Business Review,* two leading economic indicators will replace the coincident indicator in the Illinois Business Indexes. Based on historical evidence, sustained changes in these indicators anticipate future economic developments in the Illinois economy. The leading indicators were developed by the Bureau of Economic and Business Research and were discussed in the October issue of the *Illinois Business Review.* We provide the leading indicators for Illinois to allow readers the opportunity to identify significant changes, thereby providing forecasts of future economic growth or decline.

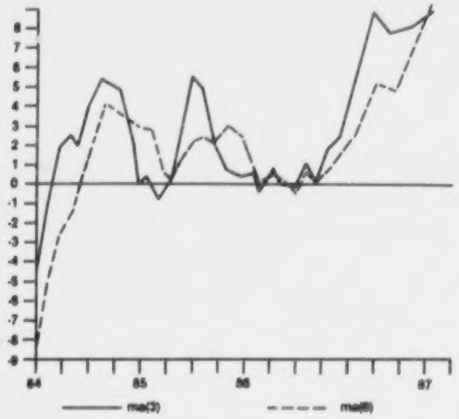
The Illinois economy is expected to grow over the next two quarters. Both leading indicators show an upturn in mid-1986 with the three-month moving average (MA(3)) staying above the six-month moving average (MA(6)) for most of this period. Retail sales have leveled off, with only a slight decrease in September. Personal income for Illinois, both total and per capita, increased in the second quarter of 1986. Finally, manufacturing employment and weekly earnings have remained fairly constant since June 1986, with slight gains in recent months.

Illinois Business Indexes

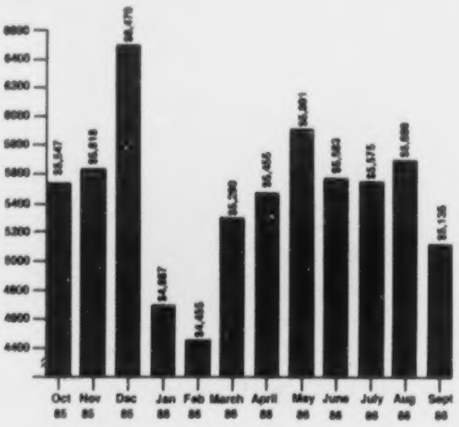
	Percent Change Sept 1985-Sept 1986	*Sept 1986*	*Aug 1986*	*July 1986*	*June 1986*	*Sept 1985*	*Aug 1985*
Leading Indicator(MA(3))[h]	8.02[h]	7.53	6.61	6.48	7.79	-0.49	0.25
Leading Indicator(MA(6))[h]	7.62[h]	7.66	6.04	4.61	4.79	0.04	1.06
Employment-manufacturing (in thousands)[e]	1.37%	962.7	960.1	959.9	961.3	949.7	952.4
Average weekly hours-manufacturing[e]	0.73%	41.2	40.9	40.7	40.8	40.9	40.4
Weekly earnings-manufacturing[e]	2.56%	$439.60	$435.18	$433.05	$432.07	$428.63	$420.56
Help wanted advertising-Chicago (1969 = 100)[a]	6.32%	101	100	103	101	95	98
Help wanted advertising-St. Louis (1969 = 100)[a]	-7.46%	62	64	65	70	67	65
Retail Sales (in millions)[b]	-1.57%	$5,135	$5,646	$5,528	$5,524	$5,217	$5,512
Coal production (in thousands of tons)	1.17%	5,254	5,225	4,355	5,325	5,193	5,384
Petroleum products (in thousands of barrels)[c]	-21.38%	2,001	2,017	2,350	2,175	2,545	2,645
Vendor performance[g]	23.81%	52.0%	51.0%	54.0%	50.0%	42.0%	42.0%
Building permits (in thousands)							
Residential housing units	54.81%	5.502	4.326	4.992	5.141	3.554	4.055
Value of Residential housing	72.78%	$359,088	$296,180	$345,144	$320,542	$207,827	$219,135
Value of nonresidential construction							
Industrial buildings	75.97%	$46,663	$20,324	$36,706	$27,825	$26,517	$30,617
Office, banks, and professional buildings	-19.92%	$25,356	$80,030	$33,019	$38,042	$31,665	$64,984
Stores and other mercantile buildings	26.72%	$43,128	$38,029	$41,720	$31,538	$34,035	$25,516
Other	15.43%	$4,040	$3,276	$5,600	$7,953	$3,507	$5,540
Consumer price index (December 1977 = 100)							
North Central US[c]	1.09%	—	176.2	—	176.1	—	174.3
North Central/population more than 1,250,000[c]	1.35%	—	180.7	—	180.3	—	178.3
North Central/population 385,000 to 1,250,000[c]	0.58%	—	172.5	—	174.1	—	171.5
North Central/population 75,000 to 385,000[c]	1.24%	—	171.2	—	170.7	—	169.1
North Central/population less than 75,000[c]	0.41%	—	171.4	—	171.3	—	170.7
Chicago (1967 = 100)	2.33%	333.9	331.4	331.1	330.4	326.3	325.9
St. Louis (1967 = 100)	1.27%	325.7	—	325.6	—	321.6	—
		1986:II	1986:I	1985:IV	1985:III	1985:II	1985:I
Personal income (in millions)[d,e,f]	5.38%	$178,690	$173,996	$173,178	$170,458	$169,561	$166,799
Per capita personal income[d,e,f]	4.76%	$15,433	$15,050	$15,001	$14,788	$14,732	$14,502

[a] The Conference Board, *Help Wanted Advertising,* September 1986. [b] Latest month projected by BEBR. [c] Percent change between August 1985 and August 1986. [d] Percent change between 1985:II and 1986:II. [e] Recent month is preliminary figure. [f] Seasonally adjusted at annual rates. [g] Percentage of companies receiving slower deliveries. [h] Represents absolute change (percent change not relevant).

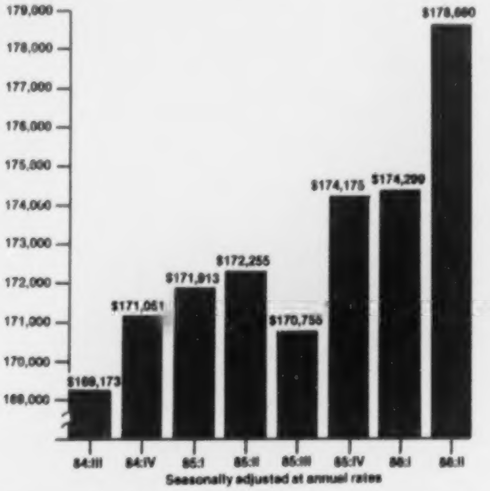
Composite Leading Indicators



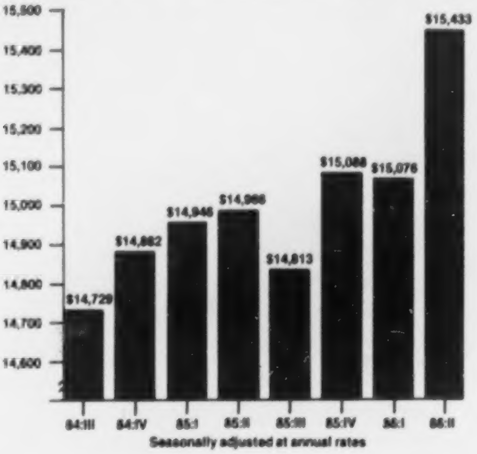
Retail Sales (millions of 1986 dollars)



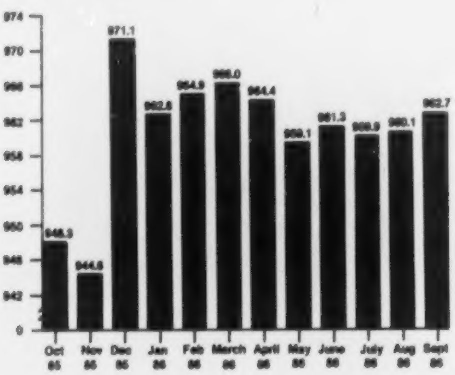
Personal Income (1986 dollars)



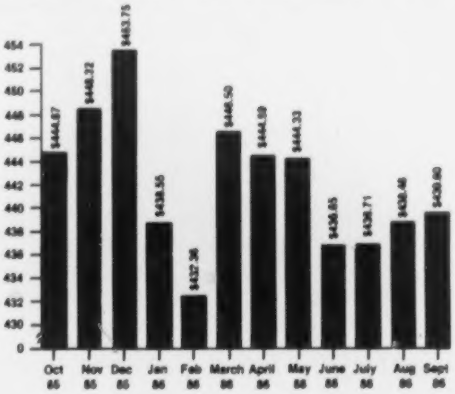
Per Capita Personal Income (1986 dollars)



Employment–Manufacturing (thousands)



Average Weekly Earnings–Manufacturing (1986 dollars)



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Illinois Business Review

Bureau of Economic and Business Research
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Champaign, Illinois 61820

Illinois Economic Outlook

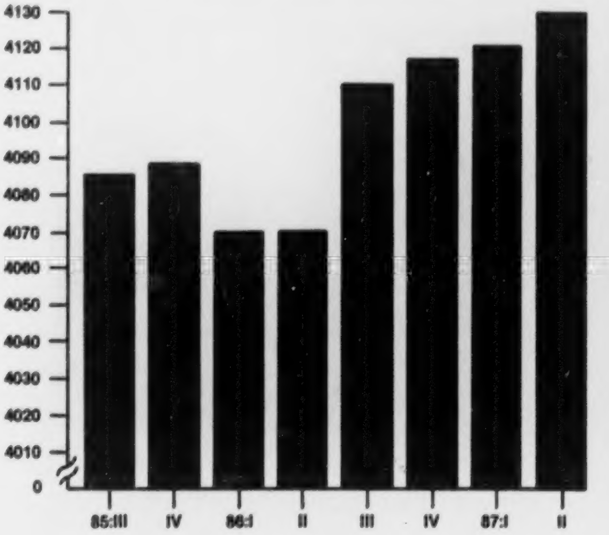
Illinois Seasonally Adjusted Employment Forecasts (in thousands)

	86:II			History				Forecast			
	Forecast	Actual	Error	85:III	85:IV	86:I	86:II	86:III	86:IV	87:I	87:II
Total Private Employment	4062.7	4070.5	−0.2%	4084.8	4086.1	4070.8	4070.5	4109.8	4116.1	4119.7	4128.1
Mining	24.8	26.0	−4.7%	29.3	29.0	26.8	26.0	25.9	24.6	23.6	22.8
Construction	177.5	180.3	−1.6%	187.1	185.8	177.4	180.3	184.2	180.5	176.8	173.9
Manufacturing	964.5	959.1	0.6%	972.6	976.8	971.3	959.1	957.3	948.8	938.9	933.7
Durable manufacturing	589.1	586.2	0.5%	596.8	598.0	594.2	586.2	586.4	577.8	569.4	565.0
Primary metals	56.1	55.7	0.6%	56.2	57.0	56.3	55.7	55.7	54.6	53.7	53.1
Fabricated metals	111.9	112.7	−0.7%	114.7	114.7	113.4	112.7	113.6	111.5	109.8	108.9
Nonelectrical machinery	147.2	144.1	2.2%	143.9	147.1	147.4	144.1	142.5	139.2	135.1	133.7
Electrical machinery	123.2	122.6	0.5%	130.5	127.0	125.1	122.6	122.5	121.8	121.8	120.8
Miscellaneous durables	150.6	151.1	-0.4%	151.7	152.0	152.2	151.1	152.1	150.6	149.0	148.5
Nondurable manufacturing	375.4	372.8	0.7%	376.4	378.6	376.1	372.8	370.9	371.0	369.5	368.7
Food products	94.2	94.7	−0.5%	93.3	94.3	95.1	94.7	92.9	93.6	93.9	93.9
Printing and publishing	112.1	110.1	1.8%	110.6	111.0	110.4	110.1	109.7	109.0	107.5	106.8
Chemical	58.3	56.7	2.8%	58.5	57.8	57.5	56.7	56.8	57.4	58.1	58.7
Miscellaneous nondurables	110.9	111.2	−0.2%	113.9	114.3	113.5	111.2	111.7	111.0	110.0	109.3
Transportation and utilities	273.2	271.9	0.5%	276.6	276.1	275.5	271.9	274.4	272.5	270.6	269.0
Wholesale and retail trade	1163.7	1179.7	−1.4%	1170.3	1171.1	1170.1	1179.7	1194.1	1206.1	1215.6	1223.5
Finance	343.5	340.9	0.8%	339.8	341.0	340.5	340.9	343.3	347.4	351.7	355.6
Services	1115.5	1117.4	−0.2%	1109.1	1106.3	1109.2	1117.4	1130.6	1136.3	1142.6	1149.6

As can be seen in the accompanying graph, the first and second quarters of 1986 showed a slight dip in total private employment. (Total private employment is the sum of the main catagories in the table above. It does not include government or farm employment .) However, the Illinois Econometric Model forecasts a jump of 39,000 in private employment for the third quarter. This forecasted increase is confirmed by preliminary data. Furthermore, the model shows continued growth in total private employment through 1987:II. This growth is sparked by healthy advances in the services and wholesale and retail trade sectors.

Looking at the error column of the table above we can see that the model performed well in forecasting 1986:II employment figures. With the exception of a 4.7 percent underestimate in mining employment, the estimates were close to the mark.

Illinois Private Employment (in thousands)



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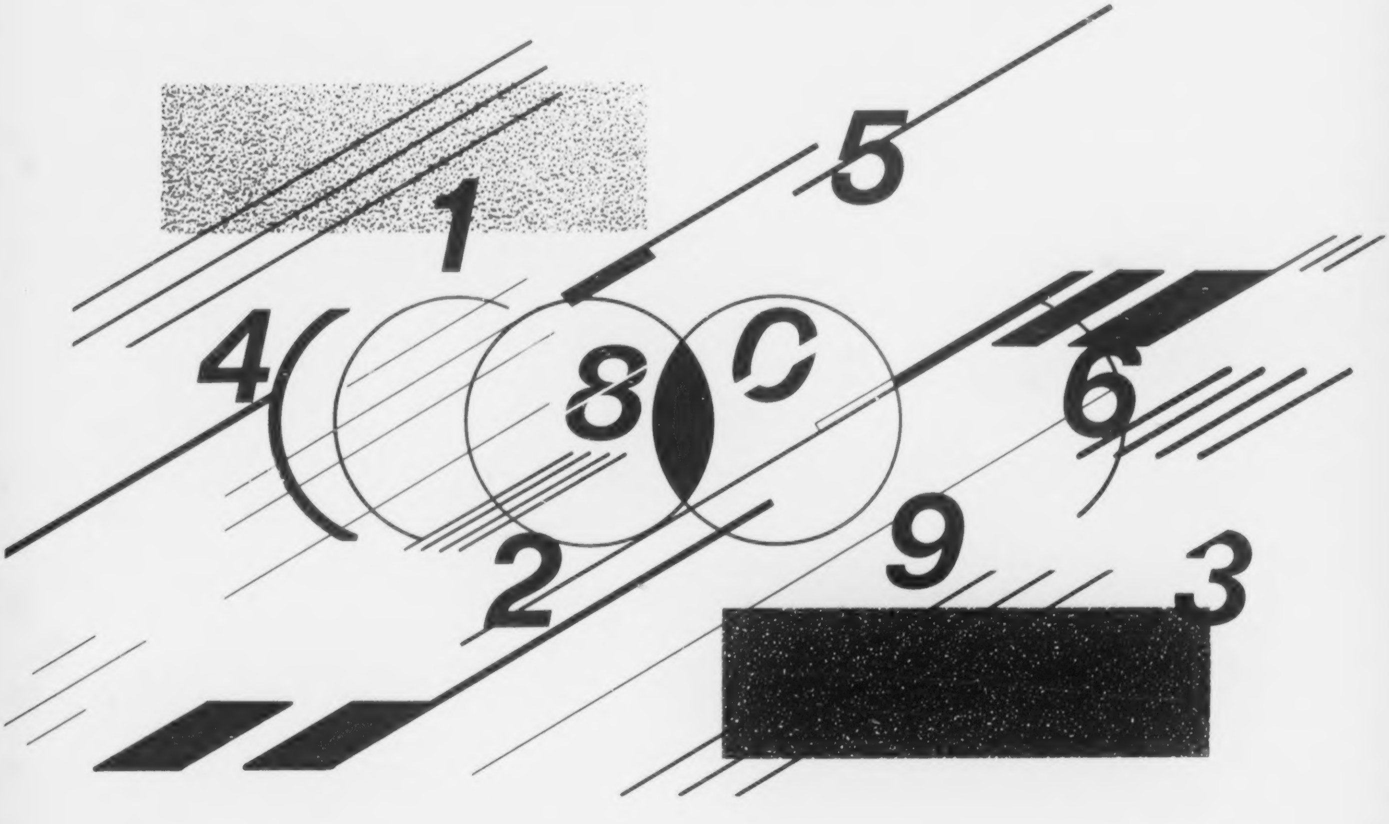

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GREGORY S. CHAUDOIN

Are Credit Card Interest Rates too High?

Since high inflation began to moderate in 1981, the prime rate has fallen markedly. It has dropped from 21 percent in 1981 to about 8 percent in 1986. Even so, during this same period the average interest rate charged for such cards as Visa and MasterCard has actually increased from 17.8 percent in 1981 to about 18.6 percent in 1986. Elected officials and consumer groups have expressed concern that credit card issuers are making excess profits. Some state and federal legislators have even threatened to place ceilings on credit card rates.

This article discusses the credit card market and whether credit card interest rates are too high. Also, the two most supported forms of regulation geared towards lowering interest rates, interest rate ceilings and disclosure laws, will be presented.

The Credit Card Market

It is estimated that about 79 percent of US consumers own credit cards. The two most commonly held types of credit cards are retail store cards held by 68 percent and bank cards held by 57 percent of consumers. The retail store cards with the widest circulation are the Sears card with a 51 percent ownership rate among US consumers, and the J. C. Penney card with 35 percent consumer ownership. Visa (45 percent) and MasterCard (34 percent) are the two most commonly held bank cards. These statistics were estimated from a survey carried out for *MONEY Magazine* by Lieberman Research Inc.

The major bank credit cards are issued and administered by institutions such as banks, savings and loans, and credit unions that are regional agents for national credit card plans such as Visa and MasterCard. These institutions pay franchise fees to the national plans and, in return, can charge whatever interest rate they choose. However, these institutions must fully fund the retail loans and operating expenses associated with card use.

Bank credit cards differ from retail store cards in that each bank card issuer sets its own interest rates and service fees. Retail store card interest rates are set nationally, with certain local differences arising from states with usury laws. Also, retail cards usually do not charge their users service fees. To make up for revenues lost by not charging service fees, retail card issuers usually charge interest rates two or three percentage points above the average rate charged for bank cards.

Even though more people own retail store cards than bank credit cards, bank credit cards are more widely accepted by all retailers, including Sears and J. C. Penney. Hence, bank card issuers have faced greater pressure to lower their card interest rates than retail card issuers.

The main bone of contention of the proponents of interest regulation is that the cost of funds for banks has diminished over the last five years, yet credit card interest rates have increased. The components of the cost of funds for a bank include such expenses as interest payments on savings deposits and certificates of deposit and interest payments on loans from other banks. These payments attract funds to card-issuing banks, and the banks, in turn, lend these funds out to credit card users at higher rates of interest.

In 1981, the average cost of funds for card-issuing banks with deposits over $200 million was 9.5 percent of each dollar transacted through a bank card, according to the Federal Reserve's *Functional Cost Analysis*. By 1985 the cost of funds had dropped to 7.3 percent. The cost-of-funds figure should be even lower in 1986, because of further reductions in the interest rates of certificates of deposit and interbank lending. So, since 1981 the cost of funds has steadily fallen along with the prime rate, mortgage rates, and yields on US Treasury securities.

Most banks and retail stores, however, are reluctant to lower interest rates. They contend that the cost of funds is relatively small compared to the expenses incurred by processing transactions, making monthly billings, evaluating credit applications, and costs associated with delinquent account and credit losses. Because of large administrative and processing costs, card issuers assert that it is wrong to assume that the total cost of credit card operations will fall with a decline in the cost of funds. Therefore, credit card interest rates are not to be expected to fall automatically with declining costs of funds.

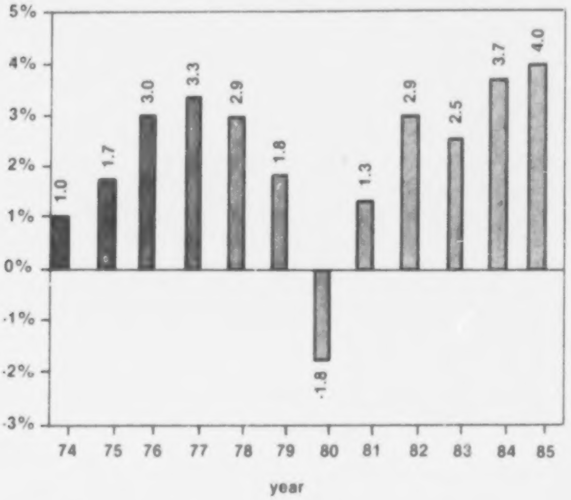
The cost of funds also accounts for a much smaller proportion of the total costs of lending for credit card operations than for commercial lending and mortgage operations. From 1972 to 1984 the cost of funds of card-issuing banks averaged only 30 percent of the total expenses of credit card operations, as reported by the *Functional Cost Analysis*. By comparison, the cost of funds accounted for more than 75 percent of the total cost of commercial loans, and for nearly 90 percent of the total cost of mortgage lending. Studies have also found that funding costs for issuers of retail store cards are less important than administrative and overhead costs, said Federal Reserve official Emmet J. Rice.

Thus, credit card operations are unique in that they have proportionally greater administrative and processing costs than costs in obtaining funds. Therefore, if administrative and processing expenses increase by the same percentage that the cost of funds decreases, total costs of credit card operations will rise. For commercial lending and mortgage operations, however, total costs will fall. The example presented illustrates why the total cost of credit card operations need not move with the cost of funds.

Are Credit Card Rates too High?

The best way to judge whether credit card interest rates are too high is not to look at falling prime or mortgage rates, but to look at profits from credit card operations. The accompanying chart presents the average net earnings after the cost of funds of large card-issuing banks from 1974 to 1985. These net earning figures represent the average pre-tax profit rates from bank credit card operations and were compiled from editions of the *Functional Cost Analysis* from the last 12 years.

Net Earnings after the Cost of Funds (percentage)



Source: Federal Reserve, *Functional Cost Analysis*

The chart shows that profit rates from credit card operations (net earnings after the cost of funds) had increased from 1.3 percent in 1981 to 4.0 percent in 1985. In addition, the 1984 and 1985 net earning rates are the highest figures over the 12-year span. Furthermore, the credit card industry in 1986 showed a 30 percent increase in pre-tax profits over 1985, said H. Spencer Nilson, publisher of the *Nilson Report*. These findings lend credence to the beliefs of the consumer advocates who feel that credit card rates have room to fall, and indeed should fall, while enabling card issuers to maintain normal returns.

One factor that enables card issuers to maintain high interest rates and earn high profits is that many card owners have been somewhat insensitive to the high rates. About 30 percent of card users do not really worry about interest rate charges because they consistently pay their credit card bill within the grace period, which is usually about 25 days. Full payment within the grace period is rewarded by no interest charges. For these prompt bill payers, credit card interest rates of 21 percent are little cause for concern.

Lack of consumer awareness is another cause of card-owner insensitivity towards high credit card rates. Fully one-third to one-half of the owners of Visa, MasterCard, and retail store cards are not aware that interest will be charged if bills are not paid in full. Only 63 percent of Visa owners, 64 percent of MasterCard owners, and 50 percent of retail store card owners surveyed are aware of the correct rate of interest charged on unpaid outstanding balances on their cards, according to the Lieberman Research survey for *MONEY Magazine*.

Many other bank card holders are not aware that each issuing bank sets its own interest rate and service fees and that by shopping around lower financing charges can be found. Arkansas and Connecticut, for example, are two states with interest rate ceilings where rates can found between 11 and 15 percent. In Illinois, the First National Bank of Lincolnshire offers rates of 15 to 18 percent to its depositors, depending on the size of deposit in the bank.

The more uninformed that card holders are about lower interest rate cards from other card issuers, the less sensitive they will be towards the high interest rates on their present cards. Thus, uninformed consumers enable many card issuers to keep their credit card interest rates up without losing many of their customers to competitors with lower rates.

Some consumer advocates and legislators contend that card issuers have too strong an advantage over uninformed card owners and propose that government should intervene on behalf of the consumers. One plan with wide support is to put a ceiling on the maximum rate that can be charged by card issuers. An alternative plan is a set of disclosure laws that promotes competition by increasing the awareness of consumers.

Credit Card Interest Rate Ceilings

Last year about ten bills were introduced in Congress that would affect credit card rates. Also, 22 states, including Illinois, had bills filed that would put a ceiling on card rates. Most of the interest rate ceiling plans call for a variable interest rate cap that would somehow be pegged to prime commercial lending rates or yields on US Treasury securities.

In Congress, a bill introduced by Senator Alfonse D'Almato (D-New York) would set national credit card interest rate limits to five percentage points above the average yield on six-month US Treasury bills outstanding the previous year. US Representative Frank Annunzio (D-Illinois) introduced a bill that ties maximum interest rates to eight points above the yield on one-year US Treasury securities. A plan from Senator Paula Hawkins (R-Florida) sets the ceiling at four percentage points over the rate the Internal Revenue Service charges on late tax payments (a compilation of prime interest rates from the previous six months, recomputed every six months). Based on current conditions, the national credit card interest ceilings would be between 12 and 15 percent.

Credit card ceilings would provide benefits for top credit risk consumers who have credit cards, but there are also economic costs associated with this regulation. One such cost is the inefficiency of credit rationing. When credit card interest rates are forced down by ceilings, revenue streams from card issuers diminish and profits fall, and even losses may occur. With lower profits, card issuers will be more selective in whom they accept as card holders. Hence, there will be a margin of consumers who desire credit cards—and would have credit cards at higher, unregulated rates—but will not be accepted for cards at ceiling rates.

Another drawback associated with variable interest rate ceiling plans is that they assume that changes in the prime rate and yields of US Treasury securities reflect changes in the cost of funds, which, in turn, reflects changes in the total cost of credit card operations. If these assumptions are true, variable interest rate ceiling plans will limit interest rates and still enable card issuers to cover costs and make normal returns. But it has been shown that movements of the total cost of credit card operations are not strongly tied to movements of the cost of funds. So variable interest rate caps may not even allow card issuers a normal return on operations. For this reason, credit card issuers strongly oppose variable interest rate ceilings.

The drawbacks generally make federal elected officials wary of a national credit card interest rate ceiling. So a national rate ceiling does not appear likely. However, there is growing momentum for rate ceilings at the state level.

Here in Illinois, there is strong political pressure for lowering credit card rates. Illinois House Speaker Michael Madigan sponsored statewide public hearings on the issue last fall. State Sen. Vincent Demuzio has united with state Comptroller Roland Burris to push for a bill that would limit credit card rates to 7 percentage points above the quarterly average of three-year US Treasury notes. Perhaps the greatest pressure to lower rates comes from newly elected State Treasurer Jerry Cosentino.

Mr. Cosentino has announced that he is withdrawing state deposits from card-issuing banks that do not voluntarily lower their interest rates to 3 percentage points above the prime. Cosentino estimates that at any given time, $100 to $200 million is invested in the six or seven major banks that offer credit cards in the state. He started the withdrawal process 22 January 1987 when he withdrew about $220 million from Illinois' largest credit card issuer, the First National Bank of Chicago, which charges 19.8 percent credit card interest.

One reason why credit card ceilings are more likely to be supported at the state level than at the national level is that the economic cost to consumers is smaller. For example, if a rate ceiling in Illinois is placed at, say, 13 percent, the top credit risks will enjoy lower rates and consumers with marginal credit ratings may not be issued cards. However, the consumers who are denied credit cards in Illinois at 13 percent can still be accepted by card issuers in other states that have no ceilings. So consumers with high credit ratings are helped, and those with lower credit ratings are not hurt.

The credit card issuers in Illinois, on the other hand, would not fair so well. There is still the problem that variable interest rate caps do not accurately reflect the total cost of credit card operation. Over time this may be harmful to the credit card industry in the state. So credit card interest rate ceilings should be used very cautiously even at the state level.

Disclosure Laws

Proponents of credit card rate regulation often argue that the market is not working because card issuers are taking advantage of an uninformed public. Therefore, a simpler alternative to lower credit card interest rates than interest rate ceilings is to increase the information available to the public. Informing the public could be done through what are called disclosure laws. Disclosure laws would require credit card issuers to prominently display annual finance charges for card use on all applications, print advertisement, and television ads and that they be announced in radio ads. Applications would also be required to list the grace period, annual fee, and all other fees that can be charged.

Both federal and state support are gaining momentum for bills that would enact disclosure laws. In the US Senate, three bills came up for hearings. In Illinois, state Representative Ellis Levin introduced a disclosure bill in the state legislature last fall. Also, many of the bills that sought interest rate ceilings contained disclosure provisions.

Disclosure laws will increase consumers' awareness level about their credit cards and the cards from competing issuers. Higher awareness will give card owners greater opportunities to shop around for better rates, which, in turn, will cause card issuers to become more competitive in their finance charges. The final result will be lower credit card rates. Thus, disclosure laws are designed with the goal of lowering credit card rates by making the market work more efficiently.

The advantage of disclosure laws over interest rate ceilings is that card issuers, not government, set their interest rates. Even though rates will fall due to greater competitive pressures, card issuers will at least have the opportunity to set rates where normal profits can be made. So, if policymakers feel that credit card interest rates need to be regulated, disclosure laws may be the best answer.

Conclusion

The high profits from credit card operations over the last three years are evidence that credit card interest rates are overdue for a fall and that, perhaps, the market is not working efficiently in the credit card industry. However, there are signs that rates may fall without government intervention.

In Illinois, the First National Bank of Lincolnshire has dropped rates to as low as 15 percent. Elsewhere, the AFL-CIO has made an agreement with the Bank of New York for a credit card with rates as low as 14.5 percent. Bank One in Columbus, Ohio offers a lower rate Visa card to contributors to PTL evangelist Jim Bakker. And Manufacturers Hanover of New York has added more than a million new accounts since it cut its rates to 17.8 percent from 19.8 in October of 1985. Chase Manhattan, the third largest bank card issuer, followed suit and lowered its rate to 17.5 percent.

Rates are falling across the nation as consumers are reading more information about interest rate differences at some competing card issuers. If these lower interest rate cards show profits for the card issuers, competitive pressures from the market should drive rates down without the aid of disclosure laws. However, if the unregulated credit card market fails to lower interest rates, there are elected officials in Illinois and other states who have the power and will to force them down. So, one way or another, expect credit card interest rates to fall in Illinois.

DONALD L. BUMPASS

Recent Trends in Foreign Direct Investment in Illinois

Isuzu of Japan, in cooperation with Fuji Heavy Industries, will begin building trucks and utility vehicles in the United States in 1989. Currently, a joint Isuzu-Fuji committee is investigating possible plant sites in Illinois, Indiana, Ohio, Kentucky, and Tennessee. The $450 million plant initially will produce 120,000 vehicles annually with a future capacity to build twice that number. Already in existence and awaiting production for the 1987 model year is Diamond-Star Motors located in Bloomington, Illinois with a plant valued at $500 million. This plant has a capacity of 180,000 vehicles and will employ around 2,500 workers.

Why do foreign firms decide to produce in the United States? What have been the recent trends in foreign direct investment (FDI)? Finally, does the presence of these foreign-owned firms create a cause for concern?

What is FDI?

Foreign direct investment occurs when a foreigner acquires interest of 10 percent or more in a US based firm. This enterprise is called a US affiliate of the foreign company. Ownership (or control) of less than 10 percent is defined as indirect or portfolio investment. The distinction between direct and portfolio centers on the issue of control. The most obvious example of FDI occurs when a firm sets up a wholly owned subsidiary abroad, but FDI may also involve a joint venture agreement when the foreign-based firm has an ownership share of more than 10 percent. While a foreign firm with extensive portfolio interests may have much greater investment commitments in the United States than a firm controlling several US affiliates, only the latter represents FDI.

Table 1. Foreign Direct Investment in the United States, 1914–1984 (billions of dollars)

Year	Position*	Direct Investment Rate of Growth (%) (in constant $)	Position/GNP (%)
1914	1.3		3.4
1919	0.9	−3.1	1.1
1934	1.5	4.1	2.1
1941	2.3	5.4	1.8
1950	3.4	2.7	1.2
1955	5.1	7.3	1.3
1960	6.9	5.5	1.3
1965	8.8	4.6	1.2
1970	13.3	7.0	1.3
1973	18.3	8.9	1.5
1980	83.0	10.2	3.0
1984	159.6	13.0	4.3

*Position is defined as the book value of the foreign direct investors' equity in and net outstanding loans to their US affiliates.

Source: David McClain, "Foreign Direct Investment in the United States," in *The Multinational Corporation in the 1980s* (Cambridge, MA: The MIT Press, 1983), pp. 280–82, and *Survey of Current Business*, various issues.

Table 2. Foreign Direct Investment Position in the United States, by Industry, 1984

Industry of US Affiliate	Position, Year-end 1984 ($billions)	% Growth 1980–84 ($constant)
Manufacturing	$ 50.7	8.5
Food Products	8.1	10.1
Chemicals	16.7	9.3
Metals	5.7	9.2
Machinery	8.9	4.8
Other	11.1	8.8
Petroleum	24.9	14.1
Trade	30.5	13.8
Financial including insurance	23.2	13.0
Real estate	16.9	19.9
Other	9.3	14.4
All industries	$159.6	13.0

Source: *Survey of Current Business* (August 1985), p. 52

Table 3. Gross Book Value and Employment of US Affiliates, by Region and Selected States

	Gross Book Value 1983 (billions)	Employment 1983 (thousands)	Percent of Region Employment
New England	$ 7.32	159.9	2.53
Mideast	31.96	566.0	2.87
Great Lakes	26.00	462.5	2.57
Illinois	6.97	125.8	2.45
Indiana	1.97	47.3	1.98
Missouri	2.44	37.2	1.57
Wisconsin	2.77	63.8	2.85
Four State Total	14.15	274.0	2.26
Plains	8.36	81.6	1.34
Southeast	58.62	615.1	2.54
Southwest	39.90	255.6	2.40
West	55.68	379.0	1.94
US Total	$241.60	2526.2	2.36

Source: *Survey of Current Business* (November 1985), pp. 38 and 48.

What are the Recent Trends in FDI?

Since early economic development in the United States was fueled by foreign investment, FDI is not a new phenomenon. As seen in Table 1, FDI since 1980 has exceeded 3 percent of gross national product, which is approximately the same as it was in 1914. Foreign investors contributed to the development in a number of important sectors (as recently as 1914, one-quarter of US Steel corporation was held by foreigners), and less than 75 years ago, FDI in the United States was twice the size of American investments abroad.

During the post-World War II period, US investment activity abroad grew rapidly so that by 1979 it was four times the foreign activity in the US ($192 billion versus $52 billion), but by the end of 1984, this ratio had declined to less than 2 to 1 ($233 billion versus $160 billion). These dollar amounts reflect the direct

Table 4. Employment of Nonbank US Affiliates, State by Country, 1983 (thousands of employees)

	Canada	France	Japan	Netherlands	Switzerland	U.K.	W. Germany	Total all Countries
Illinois	20.3	5.8	8.4	9.4	12.4	36.5	16.2	125.8
Indiana	9.2	2.4	1.5	9.5	2.5	8.2	9.5	47.3
Missouri	10.7	0.9	1.2	1.9	2.9	6.2	6.7	37.2
Wisconsin	12.7	13.0	2.8	5.4	3.8	16.2	5.4	63.8
Regional Total	52.8	22.3	13.9	26.2	21.6	64.1	37.8	274.0
US Total	456.1	197.3	162.3	228.3	174.9	560.3	350.5	2526.2

Source: *Survey of Current Business* (November 1985), p. 50.

Table 5. The Great Lake's Attractiveness to Foreign Investment, 1980–1982

Industry	Great Lake's Region
Food and kindred products	1.22
Chemicals and allied products	0.95
Petroleum and coal products	0.00
Rubber and plastic products	0.60
Stone, clay, and glass products	0.80
Primary metal industries	1.10
Fabricated metal products	1.89
Machinery, except electrical	1.27
Electric and electronic equipment	0.44
Transportation equipment	2.14
Instruments and related products	0.86

Source: Jane Sneddon Little, "Foreign Investors' Locational Choices," *New England Economic Review*, Volume 30 (January/February 1983).

investment "position," which is defined as the book value of the foreign direct investor's equity in and net outstanding loans to their respective affiliates. This "position" is not a measure of the total assets of the affiliates, which includes the equity held by and liabilities owed to investors and others. Over the last five years, the flow of FDI into the US has been over four times the flow of US investment abroad ($77 billion versus $18 billion).

Also during the 1980s the book value of foreign direct investor's equity in their US affiliates has increased at a 13 percent annual real rate (see Table 2). Over four-fifths of this investment is found in four areas: manufacturing (chemicals accounting for one-third), wholesale and retail trade, petroleum, and financial. Real estate holdings grew at the fastest rate, growing at a 70 percent higher rate than all other sectors.

FDI in Illinois and the Region

The geographical distribution of employment reveals (Chart 3) that five states (California, New York, Texas, New Jersey, and Illinois) contain 40 percent of all employment by US affiliates. Over 125 thousand workers, accounting for about 2.5 percent of Illinois' employment, were working for US affiliates in 1983. The four-state region (Illinois, Indiana, Missouri, and Wisconsin) had nearly 300,000, and the entire Great Lakes region nearly one-half million workers employed, over 2 percent of the region's total employment. In addition, US affiliates' book value of assets was $7 billion in Illinois alone, and over $14 billion in the four-state region.

Nationwide, most of the FDI is generated from seven countries: the United Kingdom, Canada, West Germany, The Netherlands, France, Switzerland, and Japan. These countries accounted for 85 percent of the total employment by nonbank US affiliates in 1983. Illinois and the four-state region show a similar pattern (see Table 4).

Also similar are foreign-owned banks in the United States; by 1982, 175 foreign banks operated 441 offices with assets exceeding $250 billion. Over 60 percent of these assets were held by banks from three countries: Japan ($89 billion), The United Kingdom ($46 billion), Canada ($23 billion). The recent expansion in banking occurred as foreign banks followed customer relationships originally established in the home country, the US dollar's dominate role in international finance made a dollar-based operation advantageous in conducting international trade, and changes in the US regulatory environment helped attract foreign banks.

Table 5 shows the Great Lake's attractiveness to foreign investments in specific industries. The numbers shown are derived by dividing the region's share of investments in a given industry by the region's share of foreign investments. A number larger than one implies that the region has an above-average attractiveness for that particular industry. For example, the Great Lake's region is shown to be relatively attractive to foreign investment in transportation equipment, fabricated metals products, machinery (except electrical), food and kindred products, and the primary metal industries. By contrast, foreign investors have avoided petroleum and coal products, electric and electronic equipment, and rubber and plastic products.

Conclusion

Foreign direct investment remains a small part of the total volume of economic activity in the United States and in Illinois. As measured by assets and employment, there are selected sectors of the economy where the presence of foreign firms is of growing significance. The prospects for FDI suggest continued growth, albeit at a slower rate, over the remainder of the decade. The reasons for the attractiveness of the United States, and Illinois in particular, for foreign investment are economic and political stability, numerous and affluent consumers, a well-educated and well-trained work force, and an optimistic view of the future. The benefits of foreign investors to the economy are also important in jobs, tax revenues, and advanced technologies. In the final analysis, foreign investment represents a "two-way street" where both the foreign investor and the domestic (host) economy are winners.

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ANN B. SCHNARE

Chicago's Dubious Achievement

Over 20 years have past since Karl and Alma Taeuber, the noted sociologists at the University of Chicago, showed their city to be one of the most segregated housing markets in the country. Since that time, fair housing laws have been enacted at all levels of government, black income has risen relative to the incomes of whites, and the attitudes of blacks and whites alike have grown more favorable towards integration. In Chicago itself, communities like Oak Park have seen the birth of innovative programs designed to encourage racial mixing; and the Chicago Housing Authority, which controls almost six percent of the city's rental stock, has been brought to court for its racially discriminatory practices.

What difference, if any, have these developments made on the spatial concentration of the city's black population? While some segments of the black community have moved to racially integrated neighborhoods, the vast majority of Chicago's blacks are just as isolated from the white population as in the past. Recent analysis of national trends in segregation shows Chicago to be the most segregated metropolitan area in the country. Unlike preceding decades, which witnessed a steady increase in the spatial concentration of the city's blacks, the level of integration experienced by the average black remained relatively constant in the 1970s. However, this stability contrasts with more favorable trends observed elsewhere in the country, where the majority of blacks and whites experienced an increase in integration.

These conclusions are based on an analysis of census tract data for a large sample of metropolitan areas in 1960, 1970, and 1980. (Census tracts are relatively small geographic areas designed to reflect established neighborhood boundaries and containing an average of about 4,000 residents each.) A variety of indexes were used to measure the extent of segregation. The first two calculated each group's exposure to members of the other race. White exposure to blacks was defined to be the proportion black of the average white's neighborhood. Similarly, black exposure to whites was the proportion white of the average black's neighborhood.

While exposure rates proxy the level of integration experienced by the average household, they do not control for differences in the level of integration that is possible within a given metropolitan area. Thus, a third measure of segregation (the so-called exposure index) compared the exposure rates that occurred in a given market to the rates that would arise if each neighborhood had the same mix of blacks and whites. This latter index was constructed to range from zero to 100, where zero depicts a market in which each neighborhood has an identical racial composition (perfect integration) and 100 depicts a market where neighborhoods are either all white or all black, but never mixed (complete segregation).

Table 1 compares trends in black and white exposure rates in the Chicago metropolitan area to trends observed nationwide. As is evident from the table, black exposure to whites decreased between 1960 and 1970, both in Chicago and in the majority of metropolitan areas throughout the country. A careful analysis of these data revealed that the decrease was caused by the peripheral growth of established minority areas. Since integration was more likely to occur at the boundaries of such areas, outward expansion of the ghetto induced a decline in the average black's exposure to whites. The explanation is geometric: the periphery of a circle or square grows less rapidly than its interior.

Between 1970 and 1980, however, this tendency towards the increased isolation of urban blacks was reversed in most parts of the country. Despite a continued growth in the size of their black populations, the overwhelming majority of metropolitan areas recorded a rise in the average black's exposure to whites. This development signaled a significant departure from previous patterns of peripheral growth. In contrast, black exposure to whites in the Chicago SMSA remained more or less the same throughout the decade. While the situation did not deteriorate, the city's black population did not experience the increases that were registered by minority populations in other areas.

Trends in the exposure rates of whites were more consistent over time and increased throughout the 20-year period, both in Chicago and nationwide. During the 1960s, when established racial patterns were

Table 1. Black and White Exposure Rates

	1960	*1970*	*1980*
Black Exposure to Whites			
Chicago	0.158	0.137	0.138
National Sample*	0.335	0.310	0.345
White Exposure to Blacks			
Chicago	0.027	0.030	0.037
National Sample*	0.043	0.049	0.067

*Statistics are based on a national sample of 64 SMSAs with three consecutive years of data.

Table 2. Distribution of Blacks by Percent Black in Tract

Percent Black	*Chicago*			*National Sample**		
in Tract	*1960*	*1970*	*1980*	*1960*	*1970*	*1980*
< 1%	0.005	0.005	0.012	0.009	0.008	0.018
1–4%	0.009	0.013	0.014	0.025	0.028	0.033
5–19%	0.030	0.024	0.053	0.096	0.078	0.116
20–49%	0.066	0.058	0.078	0.168	0.164	0.210
50–89%	0.276	0.183	0.100	0.354	0.336	0.313
90 + %	0.615	0.717	0.746	0.348	0.386	0.310
TOTAL	1.000	1.000	1.000	1.000	1.000	1.000

*64 SMSAs

Table 3. Segregation Patterns by Neighborhood Income

	Chicago			*National Sample**		
	1960	*1970*	*1980*	*1960*	*1970*	*1980*
Black exposure to whites by neighborhood income						
Lower income	0.14	0.10	0.06	0.27	0.25	0.24
Middle income	0.35	0.29	0.20	0.64	0.52	0.47
Upper income	0.59	0.57	0.61	0.83	0.71	0.72
Distribution of blacks by neighborhood income						
Lower income	0.92	0.83	0.63	0.85	0.80	0.64
Middle income	0.06	0.14	0.30	0.11	0.15	0.27
Upper income	0.02	0.03	0.07	0.04	0.05	0.09
	1.00	1.00	1.00	1.00	1.00	1.00

*64 SMSAs.

Table 4. Relative Index of Segregation

	1960	*1970*	*1980*
Chicago	0.814	0.832	0.807
National Sample*	0.561	0.592	0.532

*64 SMSAs.

maintained, increases in the exposure rates of whites reflected the relatively high rate of growth of the black community, which caused border neighborhoods to grow at a rate that exceeded the growth of all white areas. In the 1970s, however, the increasing exposure rates of whites in the majority of metropolitan areas was to some extent the result of dispersion. As noted above, this was apparently not a contributing factor in Chicago, where established racial concentrations were, for the most part, maintained.

Perhaps the most striking feature of Table 1 relates to the differences that it reveals between exposure rates in Chicago and exposure rates in other metropolitan areas. Black exposure to whites in Chicago was less than half the national average in all three years. Furthermore, the relative position of the city's blacks clearly deteriorated over time. In 1960, black exposure to whites in Chicago was 47 percent of the national average; by 1980, this ratio had dropped to 40 percent. White exposure to blacks was likewise relatively low, and dropped from 63 percent of the national average in 1960 to 55 percent in 1980.

Table 2 presents additional information on the distribution of blacks across census tracts with varying racial compositions in 1960, 1970, and 1980. In Chicago, like the rest of the country, the proportion of blacks who lived in neighborhoods that were more than 50 percent black increased between 1960 and 1970. The increase was most pronounced in neighborhoods that were more than 90 percent black, which by 1970 contained about 72 percent of Chicago's black population. While the overall proportion of blacks in neighborhoods that were between 50 and 90 percent black declined in the next ten years, the proportion in tracts that were more than 90 percent black continued to rise. This latter development stands in marked contrast to trends observed nationwide, where the proportion of blacks in neighborhoods that were more than 90 percent black declined from 39 to 31 percent. The figures in Table 2 again serve to emphasize the intensity of the segregation found in the Chicago metropolitan area. By 1980, three-quarters of the black population lived in census tracts that were more than 90 percent black. This concentration in ghetto areas was almost two and one-half times the national average. Although not illustrated by the table, the concentration of whites in predominately white neighborhoods was equally pronounced. In 1980, 75 percent of the area's whites lived in neighborhoods that were less than one percent black. The comparable national average was 57 percent.

Table 3 presents information on black exposure rates in lower-, middle-, and upper-income neighborhoods. The trends in Chicago are similar to those observed nationwide. Black exposure to whites declined in lower and middle income areas throughout the 20-year period; it also declined in upper-income neighborhoods during the 1960s, but then began to rise. The second half of the table presents information on the distribution of blacks across these different neighborhood types. Like the rest of the country, the black population in Chicago has shifted out of low-income census tracts, particularly in the 1970s. This shift from low income neighborhoods, where exposure rates were relatively low, into middle and upper income neighborhoods, where exposure rates were relatively high, has prevented a decline in the average black's exposure to whites in recent years.

Table 4 presents the so-called "exposure index," which compares the exposure rates of whites and blacks to the rates that could be achieved given the racial composition of the population. As is evident from the table, the level of segregation in Chicago increased between 1960 and 1970, and then declined. While these trends are similar to those observed nationwide, the recent decline in Chicago is not as pronounced as the one experienced by the average SMSA. Furthermore, an examination of the underlying data for individual SMSAs showed Chicago to be the most segregated market in all three years. Thus, the city's long-standing claim to the dubious distinction of "most segregated housing market" has, if anything, been strengthened in recent years.

Anne B. Schnare is Director of Housing Policy Research at the Urban Institute. This research was supported by a grant from the Office of Real Estate Research at the University of Illinois at Urbana-Champaign. Opinions expressed are the author's and do not necessarily represent the views of the Urban Institute or its sponsors.

ANNE E. WINKLER

Public Aid in Illinois: A Chance at Welfare Reform?

The State of Illinois' welfare system has been opened to important prospective change by the announcement of Project Chance on 12 December 1985, by Governor James Thompson and Gregory Coler, Director of the Illinois Department of Public Aid. Project Chance is an "employment initiative" designed to provide all welfare recipients access to training, education, work experience, and aid in job placement. Its goals are to place 112,500 welfare recipients in unsubsidized, full-time employment during 1986, 1987, and 1988 and to reduce public assistance expenditures by $40 million dollars per month.

The first section of this article examines the recent history of public assistance expenditures from 1976 through 1986. The second section focuses on Project Chance and its prospects for success.

Sources of Public Aid Expenditures in Illinois

In the state of Illinois, public aid comes in the form of medical and income assistance. In regard to income assistance, there are three major sources of expenditures: Aid for Dependent Children (AFDC); Aid to the Aged, Blind, and Disabled (AABD); and General Assistance (GA).

AFDC-basic payments are made to families with children needing public assistance due to the absence, incapacity, or death of one or both parents. AFDC-U payments are made to families with children needing public assistance due to the fact the main earner is unemployed. Funding for AFDC is shared jointly between the state and federal governments.

AABD payments are fully state-funded supplemental payments made to the low-income aged, blind, and disabled who meet eligibility requirements for the federally funded Supplemental Security Income Program.

General Assistance is a safety net for those in need who fail to qualify for these other programs. GA receives no federal funds. Instead, those local governments that levy a property tax are entitled to receive state aid. Other local governments fund General Assistance fully.

Medical Assistance (MA) is provided to AFDC and AABD recipients and to those who would otherwise qualify for these categories but earn too much, and yet still cannot pay their medical bills. Payments to these recipients are shared equally between the state and federal government. Medical assistance is also available to GA recipients and the medically indigent, those who are ineligible for GA as well as jointly funded assistance but cannot afford to pay their medical bills. These payments are fully funded by state revenues.

The amount of funds allocated to public assistance out of general fund revenues depends on several factors. First of all, the Department of Public Aid must compete with the demand of other agencies for general funds monies. As can be seen in Chart 1, public aid expenditures on operations and awards and grants as a percentage of total general funds expenditures decreased, though not steadily, from FY 76 to FY 86.

Public aid expenditures for a given fiscal year also depend on the fiscal condition of the Illinois economy and the state budget. During a downturn in the state's economy, the number of those on welfare rises, increasing the demand for transfer payments in the form of public assistance. At the same time, tax receipts decline. This causes the state budget to tighten, thereby reducing available funds. For example, from FY 82 through the first part of FY 84, the general funds monthly available balances were significantly below the warning zone of $200 million dollars. The general funds revenue crisis was reflected in limited growth of the AFDC and MA budgets for this period.

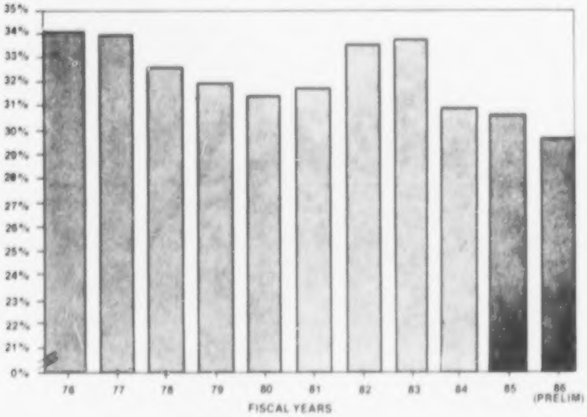
Distribution of Public Aid Expenditures

From 1976 to 1986, general funds expenditures on operations and awards and grants for public assistance increased 66.3 percent from $1.9 billion dollars to $3.16 billion dollars (see Chart 2). In terms of the relative growth of these expenditures, medical assistance expenditures nearly doubled, rising from $869 million to $1.723 billion. By comparison, AFDC expenditures increased only 20 percent, from $731 million to $877 million. GA expenditures increased 100 percent, $120 million to $239 million. Expenditures on AABD in 1976 were $40 million dollars. Subsequently, they decreased steadily to $29 million dollars in FY 83. They have since rebounded reaching $51 million dollars in FY 86. Charts 3 and 4 depict the shift in public aid spending towards medical assistance.

In real terms, these expenditures decreased from 1976 to 1986. Medical Assistance expenditures, deflated by Data Resources' Medical Services Price Index, fell 17.3 percent. AFDC expenditures, deflated by the Consumer Price Index, which includes all items for all urban consumers, fell 38.9 percent. Real GA expenditures fell during the late 1970s, but by FY 86 they had returned to their FY 1976 level.

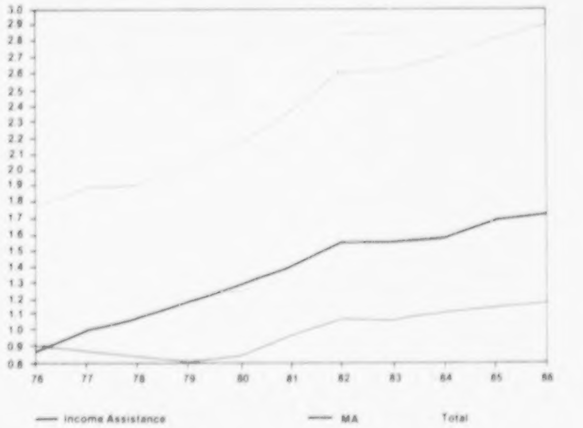
A February 1986 report by the state comptroller explains the shift of public aid spending towards medical assistance and away from AFDC by pointing to the skyrocketing costs of medical services. Also, the reduced share of AFDC expenditures out of total spending reflect limits imposed on increases in AFDC payments.

Chart 1. Illinois Public Aid Expenditures as a Percentage of Total Expenditure *



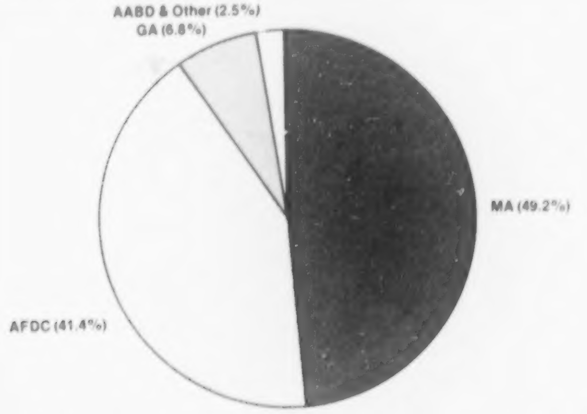
*Figures include lapse-period spending.
Source: Office of the Comptroller, State of Illinois.

Chart 2. Illinois Public Aid Expenditures on Awards and Grants* (in billions of dollars)



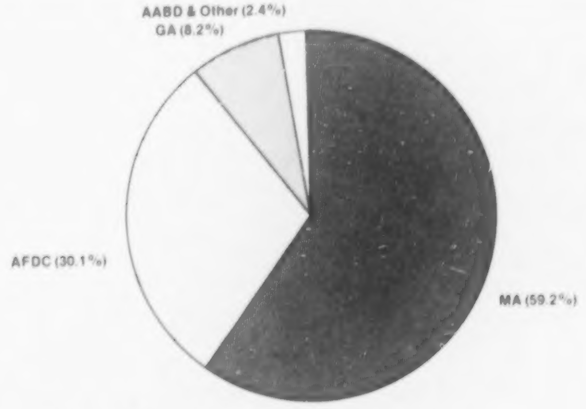
*Figures include lapse-period spending.
Source: Office of the Comptroller, State of Illinois.

Chart 3. Distribution of Illinois Public Aid Expenditures* (FY 1976)



*Figures include lapse-period spending.
Source: Office of the Comptroller, State of Illinois.

Chart 4. Distribution of Illinois Public Aid Expenditures* (FY 1986)



*Figures include lapse-period spen
Source: Office of the Comptroller, of Illinois.

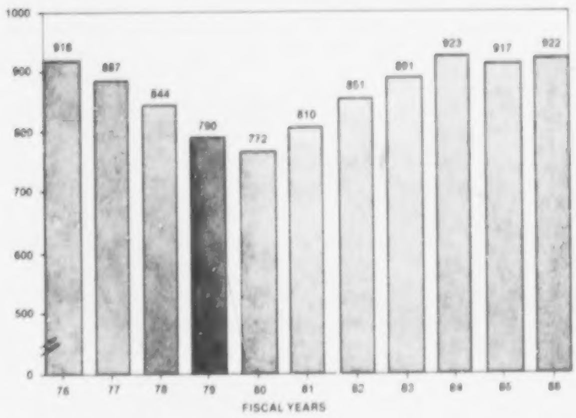
Since FY 76, the average number of people per month receiving public aid in the form of income assistance, at least partially funded by state revenues, has fluctuated between 772,000 and 923,000 but has shown no long-term trend (see Chart 5). From FY 76 to FY 86, the total number of AFDC recipients (those receiving basic and unemployment assistance) declined from 800,000 to 741,000. This can be explained by stricter eligibility requirements for AFDC recipients. There was a corresponding increase in the number of GA recipients, the safety net for those who do not otherwise qualify. From FY 76 to FY 84, the average monthly number of GA recipients increased from 69,000 to 146,000. The number has since declined to 133,000 recipients in FY 86.

Project Chance as a Long-Term Solution

In recent years, there has been increasing pressure on the Department of Public Aid to contain costs while attempting to provide adequate assistance to those in need. As a long-term solution, the Department of Public Aid has initiated Project Chance. The intent of Project Chance is two-fold. It is designed to help recipients become self-supporting, a socially beneficial goal, in and of itself. Secondly, it is designed to contain public aid spending.

As of 30 June 1985, of 342,002 adults receiving AFDC and Chicago General Assistance in Illinois, 63.6 percent had not completed their high school education. Of this total, 91 percent had completed a high school education or less. The intent of Project Chance is to improve

Chart 5. Recipients of Illinois Income Assistance (average monthly figures, in thousands)



Source: Illinois Department of Public Aid.

recipients' outside employment opportunities by providing training, education, work experience, and aid in job placement. Higher expected wages should encourage labor force participation. To the extent that workers enter or reenter the labor force and become self-supporting, the burden of welfare expenditures on the state budget will be lowered.

Structure of Project Chance

Although Project Chance was officially announced in December 1985, it was unofficially initiated at the start of FY 86. It combines features of the Massachusetts Employment and Training Choices Program (ET) and California's Greater Avenues of Independence (GAIN) Program. Like these programs, Project Chance offers welfare recipients training, education, work experience, and help in finding jobs.

Since January 1986, Project Chance has been administered by the Office for Employment and Social Services. All previously existing state employment programs, like Workfare under GA and WIN under AFDC, have been combined into a single employment program under Project Chance.

The basic premise of Project Chance is that all recipients are employable except those who are mentally or physically disabled. The program operates in two stages. The first stage assesses the skills and education of participants. The second stage provides training, education, work experience (similar to that provided under the earlier GA Workfare Program), and aid in job search. Provision of these services involves the coordination and interaction of public agencies including the Department of Public Aid, Department of Employment Security, Department of Commerce and Community Affairs, and the State Board of Education. Project Chance works with private firms as well. In FY 87, $4.5 million dollars will be awarded in contracts to private firms to pay for training programs tied to actual job openings.

Participation in Project Chance is mandatory for adults receiving Chicago GA and adult AFDC recipients with children over six, with the exception of those who are mentally or physically disabled. The program encourages exempt AFDC recipients, those with children under 6 to participate as "volunteers" by offering daycare and transportation. Those near the poverty line who do not currently receive welfare may also participate voluntarily.

As of 12 December 1985, the Department of Public Aid estimated total potential participation in Project Chance at 280,000. This estimate was computed based on the combined AFDC caseload of 239,516 and Chicago GA caseload of 102,486 on 30 June 1985. Of the potential 280,000 participants, 160,000 must participate. This figure is primarily comprised of GA recipients and a much smaller percentage of AFDC recipients. The remaining 120,000 estimated participants are volunteers. This figure is approximately equal to 50 percent of the AFDC caseload, which consists of individuals with children under six.

By the end of FY 86, approximately 105,000 welfare recipients had participated in Project Chance. This figure is comprised of 66,000 AFDC recipients, 35,000 GA recipients, and approximately 4,000 volunteers. Mandatory participation by AFDC and GA recipients combined was 59,000 below the Department of Public Aid's estimate. The 4,000 volunteers out of a potential 120,000 indicates limited participation by aid recipients with children under six. However, 4,000 is nearly 3,000 above the number of volunteers in employment and training programs in FY 85. Reasons why incentives for participation by this group may be limited are considered later.

Goals of Project Chance

The goal of Project Chance is to place 112,500 welfare recipients in full-time nonsubsidized employment over the course of 1986, 1987, and 1988. This figure is based on estimated placements of 35,000, 37,500, and 40,000 recipients, respectively, over the course of these three fiscal years. In FY 86, the Department of Public Aid exceeded its employment goal: 36,787 recipients obtained employment, an increase of 6,841 over FY 85 and 1,787 over the Department of Public Aid's estimate for FY 86.

From FY 85 to FY 86, the average monthly number of income recipients directly affected by Project Chance (AFDC and Chicago GA) fell overall by 4,000. This decrease was fully realized by a reduction in GA recipients. While this decrease may be attributed to the success of Project Chance, it might also be due to the relative state of the economy.

In regard to cost containment, the Department of Public Aid estimates the cost saving to be in the order of $40 million dollars per month. This figure is based on the estimated cost of maintaining 100,000 cases on welfare for one month. In FY 1986, $2.91 billion dollars in expenditures went to public aid awards and grants. Given this figure, their estimate suggests that Project Chance is expected to reduce expenditures on awards and grants by approximately 16 percent.

Prospects for Success

It seems plausible that the recipients most likely to obtain unsubsidized, full-time employment initially are those with relatively more past work experience, more training, and/or more education. However, given the fact that over 50 percent of welfare recipients lack a high school diploma, acquiring education and skills will take time. Consequently, their placement in unsubsidized employment cannot be expected in the very short term.

Even in the long term, optimism about the success of Project Chance must be guarded. A combination of education, training, and/or work experience may not necessarily lead to full-time, unsubsidized employment. During participation in Project Chance, the program provides daycare and transportation to allow recipients with young children to participate. In addition, these participants are eligible for state or jointly funded medical assistance. For those recipients who obtain full-time work that provides sufficient earnings to make them ineligible for continued state and/or federal aid, they currently lose the benefits of subsidized daycare, and, in many cases, medical assistance. Loss of these benefits may outweigh the gains of full-time employment and discourage full-time reentry into the labor market. This clearly represents the greatest disincentive to AFDC recipients with very young children.

At present, the Department of Public Aid is seeking to address this issue. To the extent that this problem is resolved by continuing medical assistance payments (to those who no longer qualify for state/federal aid or do not receive employer-provided medical benefits during their initial employment period) or by subsidizing daycare, the $40 million dollar estimated savings is an overestimate.

Finally, criticism has been levelled against Workfare, one of the programs of Project Chance. During a workfare assignment, recipients work for a public or not-for-profit employer. The number of hours a recipient can work per month is equal to their grant divided by the minimum wage. This number is significantly below 40 hours per week, every week. It has been argued that such programs may fail to provide public agencies, for whom recipients work, with incentives to train workers since recipients do not work for a particular agency every day for an extended period of time. Also, workers tend to turn over frequently in these positions. Moreover, job assignments tend to be for low skill positions that provide little training to increase the employability of recipients. The publication *Workfare in Illinois: A Review by the Legislative Advisory Committee on Public Aid* (March 1982) suggests that, at best, such programs improve the work habits of recipients.

Conclusions

In its *Annual Status Report* (1986), the Illinois Department of Public Aid points to the success of Project Chance in its first year. While the initial figures of those placed in unsubsidized full-time employment are promising and exceed the Department of Public Aid's goal, prospects for success must be carefully considered.

First of all, changes in expenditures, job placements, and public aid expenditures attributed to Project Chance must be isolated from business cycle effects. In a downturn, the welfare rolls will increase, and it is quite plausible that the negative cyclical effects on expenditure and employment figures may overshadow the positive impact of the employment initiative. Likewise, a reduction in welfare rolls actually due to an upturn in the economy may be erroneously pointed to as evidence of the program's success.

Secondly, while the initial results are promising, the program must address the issue that approximately 50 percent of the total AFDC caseload consists of a parent with children under six. Given this fact, *unsubsidized*, full-time employment may not be a realistic long-term goal. To address this issue, the Department of Public Aid must consider the cost of providing these recipients with a complete package of income and medical assistance versus the potential cost of subsidizing daycare and, in some cases, medical care of these recipients.

Illinois Business Indexes

The chart presenting the BEBR leading indicator series shows that the Illinois economy is expected to grow over the next two quarters. Both the three-month (MA 3) and six-month (MA 6) moving average indexes increase throughout most of 1986. Further, the three-month moving average remained above the six-month moving average during the past year with the exception of January and September. November 1986 showed a larger-than-average increase in the indexes—a further indication of future growth in the Illinois economy.

In addition, five other charts are presented. Vendor performance (representing the percentage of companies in Chicago receiving slower deliveries) has increased over 1986. Current levels of vendor performance are slightly higher than the average of 50 percent experienced in 1984 and 1985. The increase in vendor performance implies that the Illinois economy is improving: when business orders increase past some point, firms begin to find it difficult to make timely deliveries. Help wanted advertising indexes for both Chicago and St. Louis have increased: another indication of an improvement in the Illinois economy. The Chicago index has increased fairly consistently over the year and compares favorably with the 1984–1985 average of 93. While the St. Louis index has not shown a consistent upward trend, it increased substantially in November and again compares favorably with the 1984–1985 average of 60. Coal production remained fairly constant over most of the past year, except for decreases of about 20 percent in July and November. Production of petroleum products fell substantially in 1986, approximately 25 percent for the year. The behavior of Illinois production in both markets is comparable to the sluggish markets nationwide, reflecting the glut in the energy market.

ILLINOIS BUSINESS INDEXES

	Percent Change Nov 1985-Nov 1986	*Nov 1986*	*Oct 1986*	*Sept 1986*	*Aug 1986*	*Nov 1985*	*Oct 1985*
Leading Indicator (MA3)	10.85[h]	10.71	7.98	7.53	6.61	-0.14	0.43
Leading Indicator (MA6)	8.60[h]	8.60	7.17	7.66	6.04	0.00	0.25
Employment-manufacturing (in thousands)[e]	1.60%	959.7	958.3	962.1	960.1	944.6	948.3
Average weekly hours-manufacturing[c]	-0.73%	41.0	41.0	41.2	40.9	41.3	40.8
Weekly earnings-manufacturing[c]	0.69%	$438.29	$437.47	$439.60	$435.18	$435.30	$429.62
Help wanted advertising-Chicago (1969 = 100)[a]	5.83%	109	105	101	100	103	96
Help wanted advertising-St. Louis (1969 = 100)[a]	9.23%	71	63	62	64	65	64
Retail Sales (in millions)[b]	-1.91%	$5,351	$5,774	$5,584	$5,576	$5,455	$5,359
Coal production (in thousands of tons)	0.07%	4,201	5,440	5,254	5,225	4,198	5,714
Petroleum products (in thousands of barrels)[e]	-22.42%	1,990	2,158	2,158	2,017	2,565	2,719
Vendor performance[g]	33.33%	56.0%	54.0%	52.0%	51.0%	42.0%	46.0%
Building permits (in thousands)							
Residential housing units	51.54%	4.169	4.087	5.502	4.326	2.751	3.316
Value of Residential housing	80.36%	$283,167	$273,180	$359,088	$296,180	$157,000	$211,277
Value of nonresidential construction							
Industrial buildings	-56.10%	$13,277	$44,107	$46,663	$20,324	$30,241	$34,849
Office, banks, and professional buildings	-19.02%	$21,526	$48,283	$25,356	$80,030	$26,582	$74,525
Stores and other mercantile buildings	51.06%	$23,708	$28,208	$43,128	$38,029	$15,694	$35,041
Other	45.47%	$5,141	$4,593	$4,048	$3,276	$3,534	$4,502
Consumer price index (December 1977 = 100)							
North Central US[c]	0.91%	—	176.5	—	176.2	—	174.9
North Central/population more than 1,250,000[c]	1.18%	—	180.3	—	180.7	—	178.2
North Central/population 385,000 to 1,250,000[c]	0.35%	—	174.0	—	172.5	—	173.4
North Central/population 75,000 to 385,000[c]	1.29%	—	172.3	—	171.2	—	170.1
North Central/population less than 75,000[c]	0.06%	—	171.7	—	171.4	—	171.6
Chicago (1967 = 100)	1.39%	328.7	331.3	333.9	331.4	324.2	322.6
St. Louis (1967 = 100)	0.68%	323.8	—	325.7	—	321.6	—
		1986:II	1986:I	1985:IV	1985:III	1985:II	1985:I
Personal income (in millions)[d,e,f]	5.38%	$178,690	$173,996	$173,178	$170,458	$169,561	$156,799
Per capita personal income[d,e,f]	4.76%	$15,433	$15,050	$15,001	$14,788	$14,732	$14,502

[a] The Conference Board, *Help Wanted Advertising*, November 1986, [b] Latest month projected by BEBR, [c] Percent change between October 1985 and October 1986, [d] Percent change between 1985:II and 1986:II, [e] Recent month is preliminary figure, [f] Seasonally adjusted at annual rates, [g] Percentage of companies receiving slower deliveries, [h] Represents absolute change (percent change not relevant).

Chart 1. Composite Leading Indicators (Average Percent Change in Base Indexes)

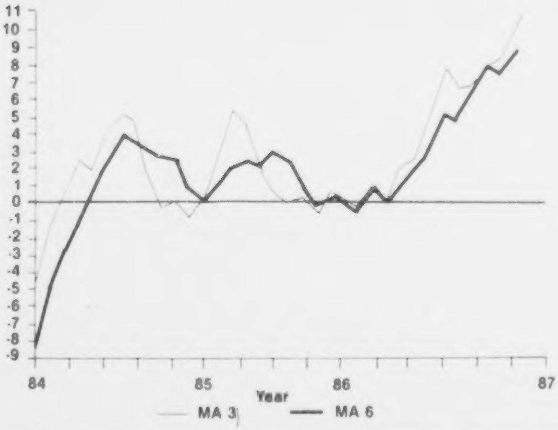


Chart 2. Vendor Performance (percentage of companies receiving slower deliveries)

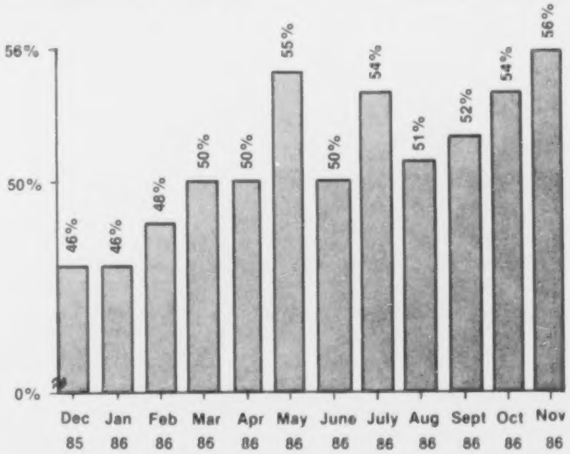
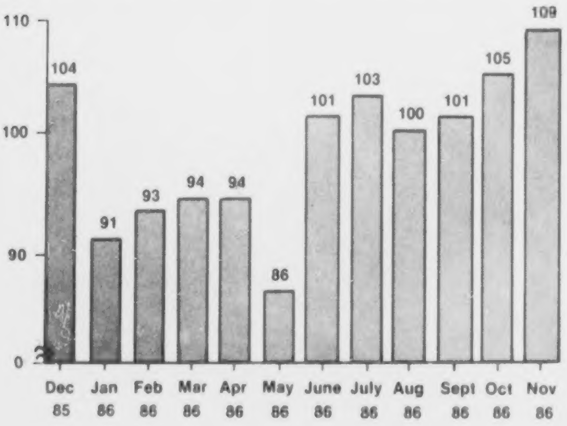
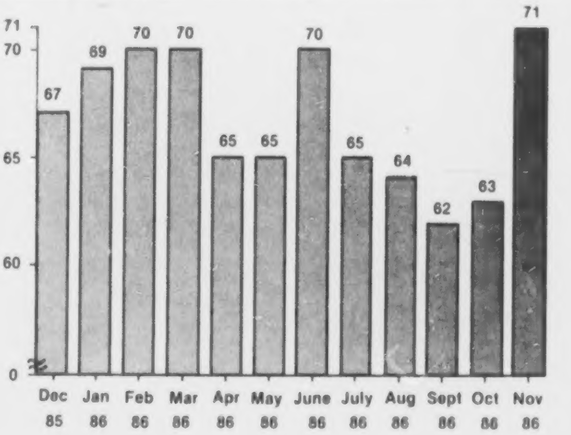


Chart 3. Help Wanted Advertising—Chicago (1969 = 100)



Source: The Conference Board, *Help Wanted Advertising.*

Chart 4. Help Wanted Advertising—St. Louis (1969 = 100)



Source: The Conference Board, *Help Wanted Advertising.*

Chart 5. Coal Production (thousands of tons)

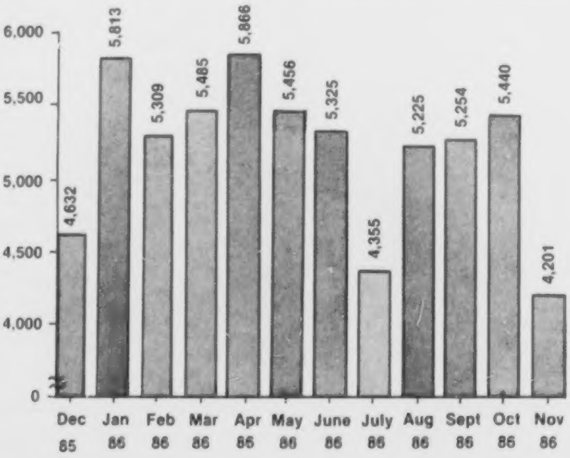
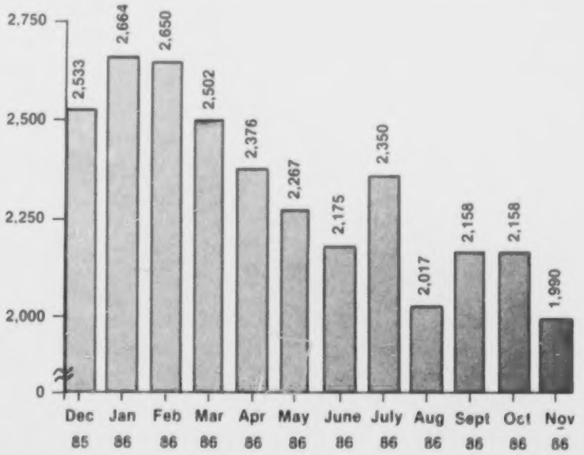


Chart 6. Petroleum Products (thousands of barrels)



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Illinois Economic Outlook

Illinois Current Economic Indicators

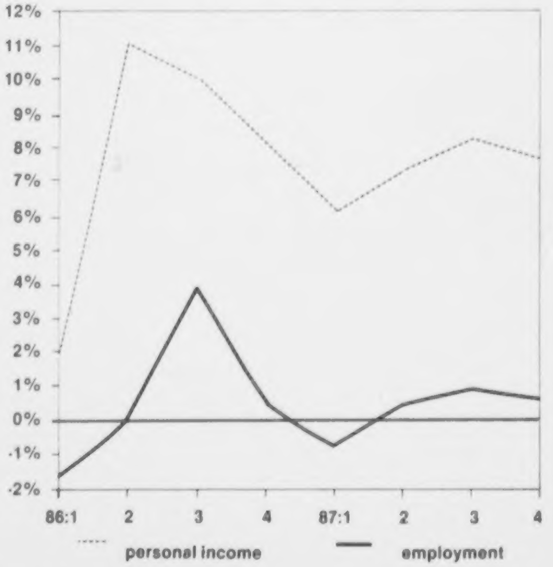
	History					Forecast			
	85:4	*86:1*	*86:2*	*86:3*	*86:4*	*87:1*	*87:2*	*87:3*	*87:4*
Personal income (in thousands)									
Total personal income	$173,178	$173,996	$178,690	$183,022	$186,682	$189,595	$193,077	$196,957	$200,732
Manufacturing	28,882	28,484	28,435	28,743	28,852	28,735	28,903	29,244	29,496
Services	29,155	29,853	30,346	31,381	32,134	32,863	33,662	34,521	35,429
Wholesale and retail trade	21,748	21,927	22,099	22,654	23,182	23,650	24,100	24,550	24,992
Finance, insurance, and real estate	10,812	11,186	11,640	11,728	11,676	11,806	11,965	12,153	12,356
Employment (in thousands)									
Private nonfarm employment	4,085	4,070	4,070	4,109	4,114	4,108	4,113	4,124	4,133
Manufacturing	977	968	959	957	946	929	922	920	915
Services	1,107	1,110	1,117	1,130	1,136	1,142	1,149	1,157	1,164
Wholesale and retail trade	1,171	1,171	1,180	1,194	1,206	1,215	1,222	1,229	1,234
Finance, insurance and real estate	341	340	341	343	347	351	354	357	360

Source: Bureau of Economic and Business Research

Illinois experienced strong economic growth in the third quarter of 1986. The Illinois Econometric Model predicts that economic growth will continue to be strong through 1987, with the exception of a slight dip in the first quarter. The chart shows past and forecasted growth rates of personal income and employment levels, which act as current indicators of the health of the state's economy.

From the table, it can be shown that the state economy is faring quite well despite a continuing decline in the economic performance of the manufacturing sector. Traditionally, this sector has been the backbone of Illinois' economy. In recent years, however, the services, wholesale and retail trade, and financial sectors have provided the greatest impetus towards economic growth. The outlook for Illinois is that these sectors will continue to spark economic recovery.

Illinois Personal Income and Employment (annualized growth rates)



Source: Bureau of Economic and Business Research

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College of Commerce and Business Administration
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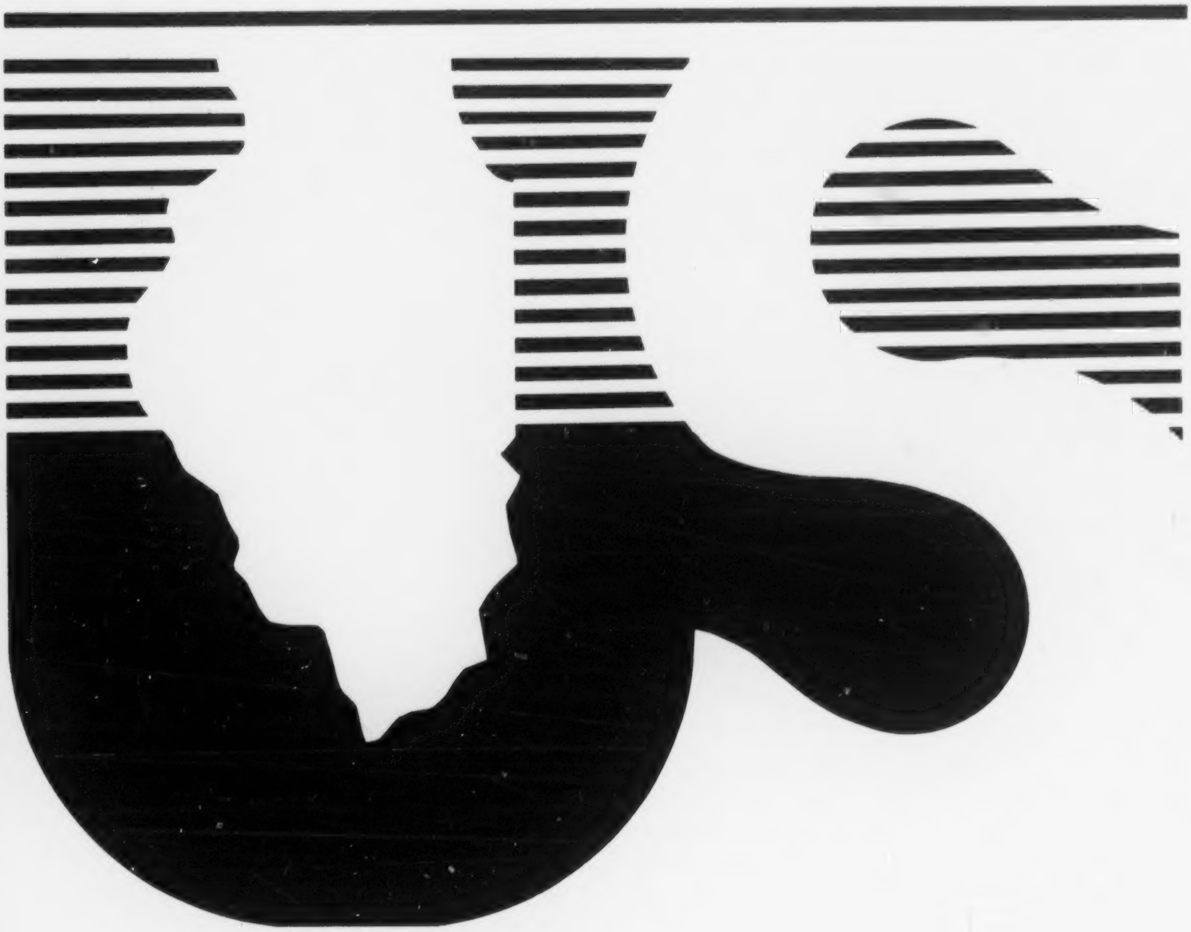

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Illinois Statistical Abstract

The *Illinois Statistical Abstract* provides over 650 pages of statistics on Personal Income; Transfer Payments; Farm Income; State Taxes; Banking and Prices; Manufacturing (with information on large and small establishments, employers, payroll, production employees, hours and wages for production employees, value added by manufacturer, cost of materials, value of shipments, and new capital expenditures); Service Industries; Building Permits; Employment; Employment, Hours, and Earnings; Labor Force Statistics; and Population. These data will be useful to scholars and students, newspapers, state and local government agencies, businessmen, lawyers, accounting firms, management firms—in short any one seeking market or location information. The book will be available in paperback ($25), and users with heavier analysis needs will be able to purchase the book on diskette ($40).

Also available is the *1987 Illinois Economic Outlook.* For further information about these publications, contact the Bureau of Economic and Business Research, University of Illinois at Urbana-Champaign, 428 Commerce West, 1206 South Sixth Street, Champaign, IL 61820 (217-333-2330).

ROBERT RESEK, FRED GIERTZ, DAVID LEE,
AND PETER DONHOWE

Exploiting Federal Tax Laws: A Proposal For Illinois Revenue Enhancement

On 4 March 1987 Illinois Governor James Thompson unveiled a variety of proposals to increase state tax revenues. To finance the $22.1 billion budget he presented to the General Assembly, he called for additional revenues from four major sources: a higher personal income tax rate, a sales tax broadened to include some services, an increased gasoline tax, and an increase in the automobile license plate fee. Offsetting these increases would be a one-half percent reduction in the sales tax rate and an increase in the personal exemption, which is the amount an individual can exclude per dependent before paying state income tax.

The Governor's view—one that is shared by many others—is that state expenditures must expand if Illinois is to achieve a variety of goals he and many in the legislature hope to accomplish. Table 1 gives the Governor's estimates of revenue gains and losses from his proposals. In all, he projects a gain of $1.056 billion in the fiscal year ending June 1988 and $1.596 billion in fiscal year 1989.

It is not our purpose to argue the relative merits and pitfalls of raising new revenues for the state government. We are willing to believe that the case has been made for a tax increase. Rather, this article presents an analysis of the implications of the Governor's proposal and offers alternatives that might be considered because they take greater advantage of the recent changes in federal tax laws.

Federal Tax Changes

Prior to 1987, Illinois residents who itemized deductions on their federal returns could subtract state and local income, sales, and property taxes from their taxable income. The saving to each taxpayer depended on the taxpayer's marginal tax rate. For example, if a person with a marginal tax rate of 40 percent paid $2,000 in state and local taxes, the deduction lowered his or her federal tax bill by $800. For all Illinois taxpayers together, the savings were considerable, amounting to several billion dollars each year.

Under the new federal law, state and local income and property taxes remain deductible, but sales taxes are not. Even though federal tax rates have been lowered, making all deductions less valuable, the loss of the sales tax deduction will still be felt by many of the state's taxpayers.

In addition, state personal income tax collections are expected to increase as a result of changes in federal law. This is because the new federal tax law eliminates a number of tax preferences or "loopholes," making a greater share of individual income subject to the federal—and state—tax (because Illinois essentially follows federal procedures on such matters). While federal tax rates have been reduced, the Illinois rate has not. Assuming the rate remains the same, the increased revenue to the state may be as much as $100 million, according to the Illinois Economic and Fiscal Commission.

However, given the new federal law, it would also be possible for the state to increase its revenues without significantly increasing the combined federal-state burden on Illinois taxpayers. Specifically, the state could reduce the nondeductible sales tax and make up for the lost revenue by increasing its still deductible income tax.

A shift from the sales to the income tax would also make the state's tax system more progressive; that is, the tax burden would be lessened for those with low to moderate incomes and increased for those with higher earnings. This is because the proportion of family income that goes to pay for sales taxes is usually higher for low-income individuals and families than for those with high incomes.

The following analysis details the effects of these changes on state revenues and individual taxpayers with different incomes. Four alternative tax proposals are examined. First, we look at what would happen if the sales tax were eliminated and replaced by a higher income tax. Second, we examine a more balanced approach, one that envisions a one percentage decrease in the sales tax rate matched by a one percent increase in the income tax rate for individuals. Third, we examine the Governor's proposal for income taxes. Finally, we consider the effect of the Governor's proposal for income and sales taxes. It should be noted that our estimates assume the various tax plans were fully effective from the beginning for the tax year. Actual collections may be somewhat less, depending on how the new programs are implemented.

Table 1. Thompson's Tax Proposals

	Revenue (millions of dollars)	
Proposed Change	*FY 1988*	*FY 1989*
Raise personal income tax rate from 2.5% to 3.0%	$ 563	$ 642
Extend sales tax to a broad range of services	233	740
Extend sales tax to include computer software	8	8
Extend sales tax to include nonprescription drugs	27	28
Increase gasoline tax from 13 to 22 cents per gallon over five years	189	315
Increase license plate fee from $48 to $65 per year	79	173
Raise the personal exemption to $1,250 in 1988, $1,500 in 1989	-43	-129
Lower the sales tax rate from 5% to 4.5% in 1989		-182
TOTAL	$1,056	$1,595

Eliminate Sales Tax and Replace it with Income Tax

Modifying state taxes by eliminating the sales tax and replacing the lost revenue with higher income taxes offers the greatest possible benefit for the state's taxpayers, because it would eliminate a nondeductible tax and increase a deductible tax. It would also yield the most revenue to the state. As can be seen from Table 2, if the sales tax were totally eliminated and the personal income tax rate raised from 2.5 percent to 5.93 percent, the net effect on the state's taxpayers would be zero, but state revenues would expand by about $895 million. However, as Table 3 demonstrates, families with taxable incomes of less than $50,000—the bulk of the state's residents—could expect their tax obligations to be lowered by amounts ranging from $112 to $178, while a typical family with higher taxable earnings would face a $775 net increase. This shift of tax burden away from taxpayers in the lower income groups reflects the shift away from the regressive sales tax toward the proportional income tax.

Decrease Sales Tax Rate 1% and Increase Income Tax Rate 1%

As can be seen from Table 2, raising the state personal income tax rate from 2.5 percent to 3.5 percent would bring in $1.285 billion in additional income tax revenue. But those who paid it would have an opportunity to claim a federal deduction, thereby lowering their federal tax bill by $261 million. By allowing a deduction for state income taxes, the federal government, in effect, would reduce the total tax liability of Illinois taxpayers from $1.285 billion to $1.024 billion. Cutting the 5 percent sales tax to 4 percent would save tax payers another $700 million. Therefore, as Table 2 shows, the net cost to taxpayers would be only $322 million but the state would gain $583 million in new revenues.

Under this approach, as can be seen in Table 3, those with high incomes would face an increase of $372 a year, while those with low incomes would pay $14 a year less. The great majority of Illinois families would pay somewhat more in taxes—from $11 to $62 a year.

Increase Income Tax 0.5% and Raise the Personal Exemption to $1,500

Our analysis of the Governor's proposed increase in the personal exemption coupled with a 0.5% increase in the personal income tax rate shows that the state would receive an additional $465 million in income tax revenue. The federal subsidy from this proposal is estimated to be $112 million, which leaves Illinois taxpayers with an effective tax increase of only $353 million.

In addition, as can be seen in Table 3, the average Illinois family with an income of less than $10,000 will actually see a $51 decrease in their tax bill, primarily as a result of the increased exemption. Taxes for families in higher income groups are expected to increase from $18 to $313.

Table 2. Alternative Proposals

	Proposal			
	Eliminate Sales Tax with Offsetting Income Tax Increase	*Lower Sales Tax By 1% and Raise Income Tax by 1%*	*Raise Income Tax 0.5%, Personal Exemption $1,500*	*Raise Income Tax 0.5%, Personal Exemption $1,500, Sales 4.5%, Broaden Base*
Income tax rate	5.93%	3.50%	3.00%	3.00%
Personal exemption	$1,000	$1,000	$1,500	$1,500
Additional income tax revenue*	$4,408	$1,285	$465	$465
less federal deduction*	($895)	($261)	($112)	($112)
Net increase to taxpayers*	$3,513	$1,024	$353	$353
Sales tax rate	0.00%	4.00%	5.00%	4.50%
Net increase to taxpayers*	($3,513)	($703)	$00	$312
Total net increase to taxpayers*	$00	$322	$353	$665
Gain in state revenues*	$895	$583	$465	$777

*Millions of dollars

Table 3. Net Change in Family Tax Liability by Income Group

	Proposal			
Income Group	*Eliminate Sales Tax with Offsetting Income Tax Increase*	*Lower Sales Tax By 1% and Raise Income Tax by 1%*	*Raise Income Tax 0.5%, Personal Exemption $1,500*	*Raise Income Tax 0.5%, Personal Exemption $1,500, Sales 4.5%, Broaden Base*
Under $10,000	$-129	$ -14	$ -51	$ -28
$10-20,000	-122	11	18	63
$20-40,000	-178	21	62	132
$40-50,000	-112	62	107	198
Over $50,000	775	372	313	455

Increase Income Tax 0.5%, Raise the Personal Exemption to $1,500, Lower the Sales Tax Rate to 4.5%, and Broaden the Sales Tax Base to Include Services

The Thompson proposal involves increasing the income tax rate by 0.5%, raising the personal exemption by $500, broadening the sales tax base, and lowering the sales tax rate by 0.5%. Our analysis indicates that these reforms will provide an additional $777 million dollars in state tax revenue (Table 2). This approach produces an estimated $312 million in additional sales tax revenues and $465 million in additional receipts from the personal income tax, $112 million of which is picked up by the federal deduction. Therefore, the effective tax increase would be only $665 million.

As Table 3 illustrates, families with the lowest incomes would have their annual tax burden reduced, typically, by $28, while others would have theirs increase from $63 to $455 a year.

Policy Implications

In deciding whether either of these approaches—or some other variation—would be sound public policy for Illinois, our elected officials are certain to consider a variety of factors.

For example, prudent tax policy requires a balanced source of revenues. Therefore, a complete move away from sales taxes might put too much dependence on the income and property taxes, which would then supply the bulk of the state's revenues. It would also mean that state revenues would be slower to catch up with inflation, should the nation experience another surge in the general price level.

It is also true that surveys indicate that the public tends to prefer the sales tax to the income tax—even though the sales tax tends to fall more heavily on low- and moderate-income residents, who make up the great majority of taxpayers.

In particular, people object to high levels of income tax. Although all of the plans discussed here would require a higher tax rate for Illinois, it is important to keep in mind that, as personal income taxes go, Illinois is a low-tax state. Illinois now ranks 35th from the top in the level of individual income taxes paid per $1,000 of personal income.

Moreover, even with higher state income tax *rates*, and a lower sales tax, the combined state and federal tax *burden* for the state's taxpayers need not change. In short, raising the state income tax rate and lowering its sales tax rate would not significantly alter the state's standing as a relatively low-tax state or otherwise seriously impair its competitive standing. Indeed, there may well be advantages to a lower sales tax rate—particularly for merchants in border areas—not to mention the real advantages that low- and moderate-income families would enjoy under an adjustment making the state's tax structure less regressive.

Summary

Illinois public officials are currently debating what might be done to raise new revenues to support necessary elements of state government. The new federal tax laws have eliminated the deductibility of state sales taxes, providing the state with an opportunity to make a beneficial adjustment in its tax system. By lowering or eliminating the sales tax and modestly raising its income tax, Illinois can capture a substantial federal subsidy. The windfall can be used either to lower the real tax burden of Illinois taxpayers or increase state tax revenues without increasing the burden to Illinois taxpayers. Our analysis indicates that the state could generate more than $500 million in additional money without significantly increasing the net burden of federal and Illinois taxes on most of the state's taxpayers. The change in the Illinois tax structure would also move the state toward a fully proportional tax system. It would lessen the tax burden for low- and moderate-income families, while increasing it for those with incomes above $50,000.

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REED OLSEN

Labor Force Developments in Illinois

Recent labor force disturbances in Illinois are short-term phenomena that are expected to lead to long-term growth. Illinois unemployment rates have been higher than those for the Unites States as a whole since early 1979. In earlier periods of national economic weakness, Illinois unemployment rates followed national trends but remained lower than those for the nation. Employment ratios for Illinois (the ratio of employment to population) have recently fallen below those for the United States, and Illinois has lost high-paying manufacturing jobs at a faster rate than has the country as a whole. Illinois manufacturing jobs have been replaced in part with traditionally lower-paying service jobs.

These labor force disturbances have been regarded as evidence of the relative weakness of the Illinois economy. But in light of the fact that the United States as a whole is experiencing a shift from a manufacturing economy to a service economy, it can be argued that current employment changes in Illinois are the means of assuring Illinois of a secure position in the future US economy.

This article presents labor force and employment data comparing Illinois with the United States and other states over a period of time. First, there is a discussion of the methods by which the statistics are developed; this discussion provides insights into the strengths and weaknesses of the alternative methods. Second, historical evidence is presented comparing labor force developments in Illinois and the United States. Finally, the view that recent labor force disturbances in Illinois will lead to a long-term improvement in the Illinois economy is discussed. Labor force data from other states are also presented supporting the view that the Illinois economy will improve in the long term.

Overview of Methods

Estimates of employment and unemployment in the US are developed according to three different methods. Industrial employment is estimated using information collected directly from firms.[1] Household survey data are used for the United States as a whole and for 13 states and regions, including Illinois.[2] Econometric and statistical techniques are used to estimate the labor statistics for the remaining states, local areas, and regions.[3]

Industrial employment for the US and Illinois is collected by the US Bureau of Labor Statistics. The information is collected as a supplement to each establishment's quarterly unemployment insurance reports. For an establishment making products in more than one industry, the entire employment is counted under the industry of the principal product. The chief strength of industrial employment statistics is that they include most establishments in the country. Those employed consist of workers on payrolls who received pay for any part of the month in question that includes the twelfth day of the month. The major weakness of industrial employment statistics is that they exclude proprietors, self-employed workers, unpaid volunteer/family workers, farm workers, and domestic workers.

As part of its continuing current population survey, the Bureau of the Census conducts a monthly household survey. For purposes of the survey, an individual is placed in one of three categories: employed; unemployed; or out of the labor force. A person is considered employed if he or she works as a paid employee for any time during the week in question. Also considered as employed are people who worked 15 hours or more as an unpaid employee for a family business or who were temporarily absent from jobs due to sickness, vacation, bad weather, and so on.

A respondent who is not employed is considered as unemployed if two conditions are met. First, it is necessary that the person be available for work except for temporary illness. Second, it is generally necessary for the person to have made some specific effort to find employment.

The labor force is defined as the sum of employment and unemployment. The unemployment rate is derived from these estimates. It is the ratio of unemployment to the labor force, and, thus, it has all the weaknesses of a ratio. It can get larger for several reasons: unemployment may rise; the labor force may fall; unemployment may rise more rapidly than the labor force; or the labor force may fall more rapidly than unemployment. Any given short-term change in the unemployment rate can reflect alternative underlying economic scenarios. Hence, short-term changes in the unemployment rate may provide a misleading indicator of the strength or weakness of the economy.

Beyond the ratio problem, there is a view that labor markets work in a way that can induce other problems of short-term interpretation. For example, from time to time unemployment may rise as employment opportunities improve. People who have been outside the labor force may be induced to enter it because plenty of jobs appear to be available. But if they do not find jobs immediately, the rate of growth in unemployment can be more rapid than the growth in employment. It can be argued that such an increase in the unemployment rate reflects strength in the underlying economy, not weakness.

Likewise, unemployment may fall as employment opportunities worsen. People who were in the labor force, but unemployed, may become discouraged by the lack of job opportunities and leave the labor force. If unemployment declines more rapidly than employment, the unemployment rate will fall. Even so, the decline reflects underlying weakness in the economy, not strength.

Employment ratios, defined here as the proportion of the population employed, are another measure of the economic situation. But employment ratios do not have the problems inherent to the unemployment rate. The two components of the employment ratio, population and employment, are substantially independent—at least in the short term. Thus, for example, a short-term rise in employment would not cause population to rise. The population of an area changes by virtue of changes in birth/death rates and through population shifts among geographic areas. Birth/death rates tend to be fairly stable over the short term. Thus, short-term changes in employment ratios tend to reflect employment changes.

Historical Evidence

Unemployment rates, employment ratios, and industrial employment statistics, as traditionally interpreted, suggest that the Illinois economy has weakened relative to the nation as a whole.

Charts 1 and 2 present US and Illinois unemployment rates and employment ratios, respectively. Notice that both series suggest that Illinois, during the 70s, was relatively better off than the nation as a whole. Illinois unemployment rates were lower than US unemployment rates until 1980. Employment ratios were larger in Illinois than in the United States until 1984.

Comparisons of recent Illinois and US unemployment rates suggest that the Illinois economy has begun to fare poorly relative to the country as a whole. Since 1980, Illinois unemployment rates have been 1.3 percent higher, on average, than US rates. While Illinois employment ratios fell below US ratios in 1984, the relative decline has been quite small.

Long-term changes in employment ratios for Illinois reflect, at least in part, the outflow of population from Illinois. From 1970 to 1985 population growth in the US was expanding at a 1.05 percent average annual rate. Such an increase implied stable birth/death rates. Moreover, because the US has stringent immigration laws, there has not been a large influx of people into the US from abroad. Illinois has had a much lower growth rate than the nation as a whole. The Illinois population has grown at a 0.24 percent average annual rate with some years showing population declines. Assuming Illinois birth/death rates similar to those in the country as a whole, population has been leaving Illinois.

There are two conflicting explanations for the loss of population in Illinois. First, lack of employment opportunities and low wages in a geographic area provide incentives for workers to move from that area. Moreover, it is the young and highly skilled workers that are more likely to move from a depressed region. Younger workers have more time to reap the benefits of moving than older workers. There is a view that the older, chronically unemployed workers remain, thereby weakening the economy further. According to such considerations, employment ratios in Illinois would overstate the strength of the Illinois economy.

Another explanation of the outflow of population from Illinois is that workers' geographic preferences have changed. Sun states—such as Florida, Texas, Arizona, and California—have had large increases in population. From 1970 to 1980 the population of these four states increased at a 3.6 percent average annual rate, much higher than the US average during the same period.

Chart 1. Unemployment Rates (unemployment/labor force)

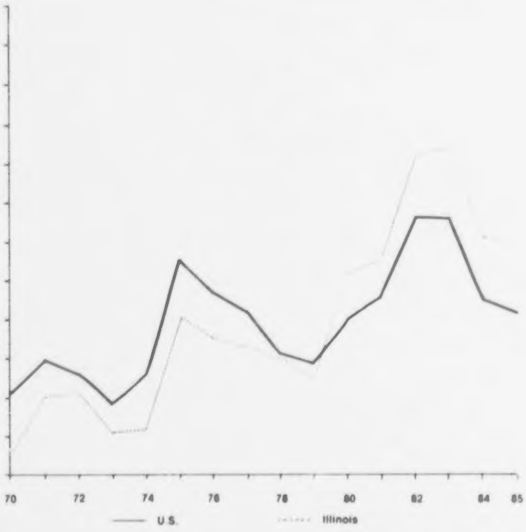


Chart 2. Employment Ratio (employment/population)

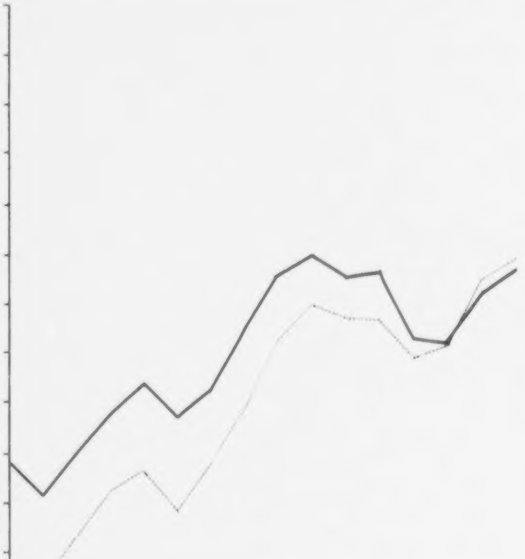


Chart 3. Illinois Industrial Employment (proportion of industry to total nonagricultural)

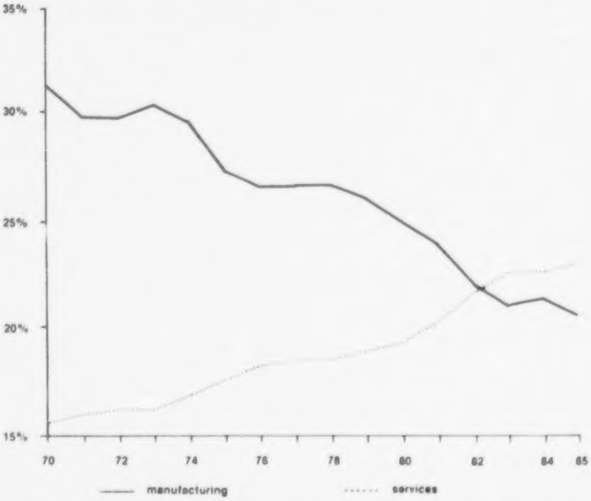
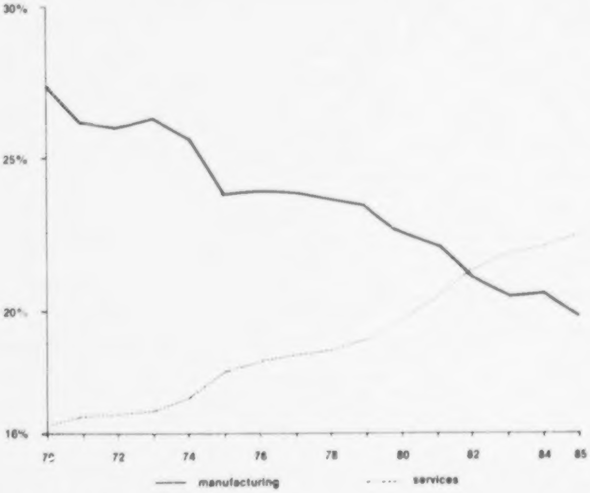


Chart 4. US Industrial Employment (proportion of industry to total nonagricultural)



Businesses tend to locate where they can be assured of a continued supply of skilled workers. As workers relocate, employment tends to follow. Likewise, if a region loses skilled workers due to changing geographic preferences, employment would also be expected to decrease in the long term. However, although Illinois has experienced population outflows, employment has continued to increase. Thus, the increase in Illinois employment is an indication that the Illinois economy has been improving.

Charts 3 and 4 present Illinois and US employment in manufacturing and services as a proportion of total nonagricultural employment. They show similarities for the country and Illinois. Manufacturing employment has decreased sharply while services and trade employment has increased for both Illinois and the

United States. However, differences in the experience of Illinois compared with the nation provide insights in understanding the change in the relative economic status of Illinois (see Charts 3 and 4).

Even though the Illinois economy has shown the same trends as the nation as a whole, the deterioration in Illinois manufacturing has been at a faster rate. US manufacturing employment fell from 27.3 percent of total employment in 1970 to 19.8 percent in 1985, a decline of 27.5 percent. In Illinois, manufacturing employment fell from 31.3 percent of the total employment to 20.6 percent over the same period, a 34 percent decline.

A New Interpretation of Historical Evidence

There is no doubt that the loss of jobs in the traditionally strong manufacturing sector of the Illinois economy has contributed to the current relatively high unemployment rates in Illinois. The traditional interpretation of such developments, as discussed earlier, is that high unemployment rates and loss of manufacturing jobs reflect a weakening of the Illinois economy. It is important to recognize, however, that a fundamental change has occurred in the US economy as a whole. Corresponding changes in the Illinois economy are necessary for its long-term strength.

The strength of the Illinois economy over much of the century has been in its manufacturing sector, but manufacturing has not always been the base of the Illinois economy. As in the United States as a whole, agriculture served as the Illinois economy's basic industry through much of its early history. By moving earlier to a manufacturing-based economy, Illinois was assured of a strong economy throughout much of the twentieth century.

The US economy is again in transition, moving away from manufacturing toward a services economy. In the long term, the Illinois economy would be strengthened by adjusting quickly to the shift. As it turns out, Illinois has begun to make the transition. As shown in Chart 3, services employment has increased from 15.6 percent of total nonagricultural employment in 1970 to 23.1 percent in 1985; an increase of 48 percent. During the same period, US service employment increased from 16.3 percent of total nonagricultural employment to 22.5 percent, an increase of 38 percent. Although Illinois started the transition from manufacturing to services later than the country as a whole, it has been changing more rapidly. Thus, it is plausible to expect that Illinois unemployment rates will fall relative to the US average as the transition is completed.

Data from 13 states, presented in Charts 5, 6, and 7, substantiate the view that the US economy is in transition. All the states in the sample have a fairly large population, and none depends on agriculture as its basic industry. The states are divided into two basic types. Type A states either began later or have not yet begun to move from manufacturing to services and include Illinois, Indiana, Michigan, Ohio, Pennsylvania, and Wisconsin. Type B states began the transition from manufacturing to services fairly early and include Arizona, California, Florida, Massachusetts, New Jersey, New York, and Texas.

Chart 5. Industrial Employment for Type A States (proportion of industry to total nonagricultural)

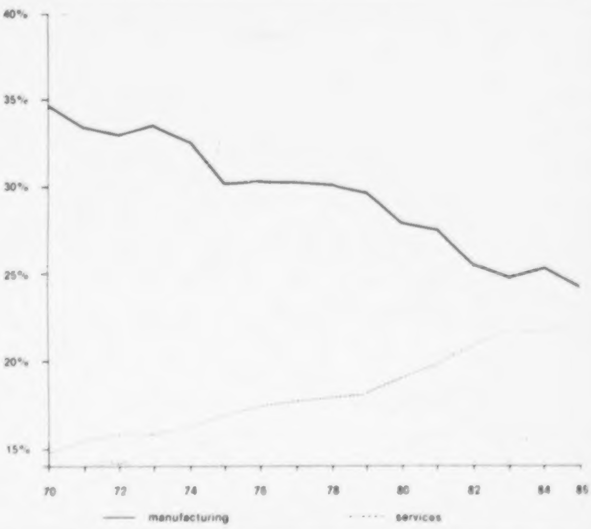
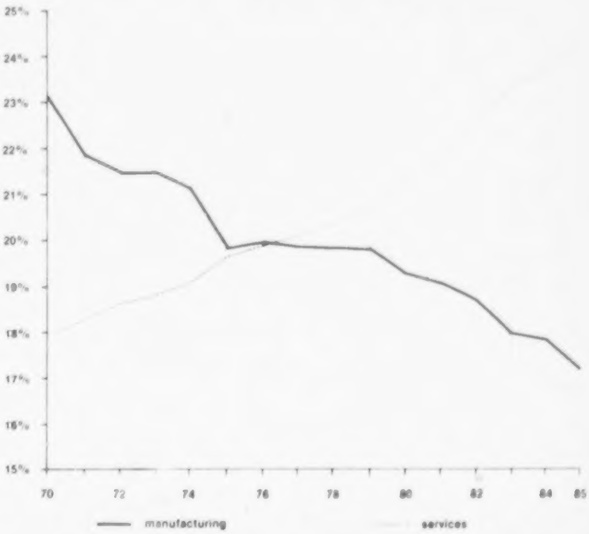


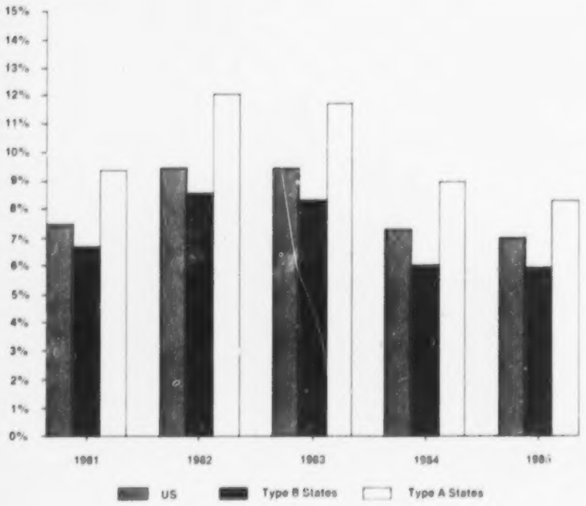
Chart 6. Industrial Employment for Type B States (proportion of industry to total nonagricultural)



Charts 5 and 6 show industrial employment as a percent of total nonagricultural employment for both types of states. Type A states, on average, have not yet reached the point where employment in services is more important than in manufacturing. On average, services employment in Type B states became more important than manufacturing employment in 1976. Type B states have not only adjusted faster to changes in the US economy but they did so earlier than Type A states.

Chart 7 presents unemployment rates for the US, Type A states, and Type B states since 1981. Over this period Type A states have consistently had unemployment rates much higher than the US rates. During the

Chart 7. Unemployment Rates (unemployment/labor force)



same period Type B states have consistently had lower unemployment rates than the US. However, the gap between Type A and Type B unemployment rates has narrowed somewhat in the last two years.

The implication for Illinois is that current high unemployment rates are short term and are a result of the transition from a manufacturing to a service-based economy. If this view is correct, Illinois will be better off in the long term by encouraging the transition to occur as quickly as possible.

Notes

[1] Issues of *Employment and Earnings*, published by the Bureau of Labor Statistics, have detailed information on how industrial establishment data is gathered.

[2] For detailed information on the estimation of survey labor force statistics see a current issue of *Employment and Earnings* published by the Bureau of Labor Statistics. In addition to the United States, survey data for the 13 states and regions—New York, California, Illinois, Ohio, New Jersey, Pennsylvania, Michigan, Texas, Massachusetts, North Carolina, Florida, Los Angeles SMSA (standard metropolitan statistical area) and New York SMSAs, are considered reliable enough to be used directly from the *Current Population Survey*.

[3] Detailed information on the estimation of local area and region labor force statistics can be found in the Bureau of Labor Statistics *Manual for Developing Local Area Unemployment Statistics*.

ROGER E. CANNADAY, EUGENE W. STUNARD, AND MARK A. SUNDERMAN

Property Tax Assessment: Measures and Tests of Uniformity Applied to Chicago Condominiums

An important issue of concern to taxpayers, assessors, and others is the uniformity of property tax assessments. Ideally, for a given class of property in a particular jurisdiction the assessed value should be the same fraction of the market value for each such property. Unfortunately, the achievement of this ideal is difficult in practice. Indeed, the sheer complexity of the problem insures that there will be some inequity. The questions, thus, are what level of inequity is acceptable and how is the inequity to be measured and tested.

Several measures and tests have been developed to address the issue of assessment uniformity. In a recent study on which this article is based, these measures and tests were applied to a sample of Chicago condominiums. The purpose of this article is to demonstrate the possibility of inconsistent results when these measures and tests are used.

A key problem in applying measures and tests of assessment uniformity is to develop estimates of market value. Most often, actual sales prices are used as a proxy for market value. There are at least two potential difficulties with this practice. One difficulty arises if sales prices are not all adjusted to the date for which assessed values are estimated. The second difficulty emerges if the properties that sold during that year are not representative of all properties in that jurisdiction (or sub-area being tested in that jurisdiction).

The use of a price index is a means of overcoming these difficulties, at least to some extent. With a price index it is possible to adjust sales prices for date of sale so that market values are all estimated for the same date. Further, use of a price index allows sales over a period of several years to be used, thereby increasing the probability that the sample of properties is representative of all properties.

There are two basic types of inequity that may be present if assessments are not uniform. The first type is horizontal inequity, defined as a situation in which persons having similar properties with the same market value pay different property taxes because their assessed values are not the same. The second type is vertical inequity, defined as a difference between the ratios of assessed value to market value that is systematically related to price level. For example, if lower-priced properties are systematically assessed at a higher percentage of market value than are higher-priced properties, the vertical inequity is characterized as regressive; the reverse is characterized as progressive.

Table 1. Tests of Vertical Inequity

Test	*Equation*	*Question*	*Proposed by*
(1)	$AV = b_0 + b_1SP$	$b_1 = 0$?	Paglin & Fogarty
(2)	$AV/SP = a_0 + a_1SP$	$a_1 = 0$?	IAAO
(3)	$AV = g_0 + g_1SP + g_2SP^2$	$g_0 = g_2 = 0$?	Bell
(4)	$AV = q_0SP^{q_1}$	$q_1 = 1$?	Cheng, Reinmuth
(5)	$SP = t_0AV^{t_1}$	$t_1 = 1$?	Kochin & Parks

Note: AV = Assessed Value
SP = Predicted Sales Price

Measures of Horizontal Inequity

Even if there is no systematic price-related inequity (that is, no vertical inequity), studies of assessment uniformity will always find some horizontal inequity. The inequity reflects imperfections in assessment procedures, including, perhaps, a lack of certain information needed to estimate market value. Therefore, no test of whether or not there is horizontal inequity is needed. Rather, a measure of the degree of nonuniformity is needed.

The most commonly used measure of horizontal inequity is the coefficient of dispersion. The International Association of Assessing Officers (IAAO) provides guidelines for a reasonable level of assessment uniformity based on the coefficient of dispersion, "Coefficients of dispersion with respect to the median assessment ratio for single-family residences generally should be less than 15 percent, and for areas of newer and fairly similar residences, less than 10 percent." (IAAO Assessment Standards Committee, *Standard on Assessment-Ratio Studies*, 28 September 1980, p. 12).

According to the IAAO, the second most widely used measure of horizontal inequity is the coefficient of variation. A third measure, the degree of horizontal inequity, is suggested by Paglin and Fogarty in an article in the *National Tax Journal* (December 1972, p. 559).

Tests of Vertical Inequity

While there will always be some level of horizontal inequity, there may or may not be any statistically significant vertical inequity. A summary of five alternative tests of vertical inequity is presented in Table 1.

The predicted sales price is estimated simply by adjusting the actual sales price for the date of sale. This is accomplished by applying a price index developed by using statistical techniques. All sales prices are adjusted in this manner to reflect what the price would have been on 1 January 1983, the date for which assessed values were obtained for the study on which this article is based. The test to determine whether there is significant vertical inequity is then conducted by relating predicted sales price to assessed value. The exact form of this relationship varies by the type of test used, as can be seen in Table 1. For example, relating predicted sales prices directly to their corresponding assessed values is proposed by Paglin and Fogarty. Statistical techniques may be used to develop estimates of the parameters b_0 and b_1 for Test (1). There is no vertical inequity if the estimated b_0 is not significantly different from zero. Note that if b_0 is not significantly different from zero, then b_1 should be equal to the specified ratio of assessed value to market value (that is, 0.16 for condominiums in Cook County). If b_1 is not equal to the specified ratio, then it could be used by the state as a basis for applying equalization factors. Similar interpretations apply to the other tests.

The most drastic break with traditional tests for measuring vertical inequity is proposed by Kochin and Parks. They assert [*Property Tax Journal*, March 1984, p. 511] that the tests ...

> in widespread use and recommended by the assessors' professional associations and textbooks are incorrect. The procedures are biased in such a way that they would indicate systematic underassessment of high-value properties and over-assessment of low-value properties even if the assessments are in fact uniform. Although this statistical bias has been recognized in the published literature, the suggested "corrections" for the bias are wrong, and the fact that there is a simple approach that is not prone to the error has gone unrecognized.

Kochin and Parks purport to show that Tests (1), (2), and (4), and by implication Test (3), fail as tests for vertical inequity because in each case the application of standard statistical techniques results in biased estimates that will persist even with large samples. Their method for eliminating this bias is to reverse the positions of predicted sales price and assessed value in the test equation; compare the equations for Tests (4) and (5). Based on Test (5), there is no vertical inequity if t_1 equals 1.

Development of the Price Index

The data for this study consist of 524 sales of condominium units in 11 high-rise buildings in three areas of the North Township—the Gold Coast, Streeterville, and Sandburg Village. The sales occurred during the period from January 1979 to July 1985. Sales prices range from $38,000 to $812,000 and the range for living area is from 519 to 3,830 square feet. It was thought necessary to include a wide range of prices since one key aspect of the purpose of this study is to demonstrate tests for systematic, price-related inequities in assessment. One price index was developed on the basis of the combined sample for all three areas. However, it is suspected that each of these three areas may be a distinct sub-market and a separate price index for each of the three areas may be more appropriate. The price index for the Gold Coast area is based on 109 sales in four buildings located within a three block area on the west side of North Lake Shore Drive. The Streeterville area price index is based on 295 sales in three buildings located near the intersection of Michigan Avenue and Chestnut Street, on the east side of Michigan Avenue. The Sandburg Village price index is based on 120 sales in four buildings clustered around the intersection of Schiller Street and Sandburg Terrace. The Sandburg Village buildings are only about five blocks west of Lake Shore Drive (the prestige street address in the Gold Coast area) and were thought to be a logical choice for units that sell in the lower priced segment of the market.

Tests for Assessment Uniformity

The two types of inequity that may be present when assessments are not uniform are horizontal and vertical inequity. The results reported below indicate the inconsistencies among three measures of horizontal inequity and five tests of vertical inequity.

Measures of Horizontal Inequity

As indicated previously, there is horizontal inequity in the assessment of condominiums in this sample and the three measures presented in Table 2 provide an indication of the extent of this inequity. The coefficients of dispersion are all below 15 percent, so they meet the standard specified by the IAAO for residential areas. The horizontal inequity is lowest for the Sandburg Village area on the basis of all three measures. However, the measures are not consistent in ranking the level of horizontal inequity for the other areas.

Tests of Vertical Inequity

The five tests of vertical inequity presented earlier in Table 1 were conducted for the entire sample and for each of the sub-area samples. Tests based on the entire sample and on the Streeterville sub-area sample consistently show that there is vertical inequity. However, the results are mixed for the other two sub-areas.

For the Gold Coast sub-area sample, opposite conclusions are reached on the basis of the four more traditional tests and the Kochin and Parks test. The four traditional tests consistently indicate that there is vertical inequity while the Kochin and Parks test indicates that there is not.

Table 2. Measures of Horizontal Inequity

	Coefficient of Dispersion	*Coefficient of Variation*	*Degree of Horizontal Inequity*
Combined Area	12.83	17.96	0.2105
Sandburg Village	6.51	7.97	0.0785
Streeterville	13.72	20.13	0.1912
Gold Coast	13.86	17.48	0.1302

Table 3. Indication of Regressivity

	Alternative Tests of Vertical Inequity Based on Streeterville Sample				
	Predicted Assessed Value to Sales Price Ratio				
Sales Price	*Test (1)*	*Test (2)*	*Test (3)*	*Test (4)*	*Test (5)*
$200,000	.1153	.1226	.1227	.1167	.1177
400,000	.1018	.1076	.1076	.1046	.1115
600,000	.0973	.0926	.0922	.0981	.1080
800,000	.0950	.0776	.0767	.0938	.1056

NOTE See Table 1 for description of Tests (1) through (5)

The results for the Sandburg Village sub-area sample also are inconsistent. The critical parameter for three of the four traditional tests is not significantly different from the appropriate magnitude, zero or one. The conclusion on the basis of the traditional tests likely would be that there is no vertical inequity for the Sandburg Village sample. However, the opposite conclusion would be reached on the basis of the Kochin and Parks test since the critical parameter is significantly different from one, implying that there is vertical inequity.

When there is vertical inequity, it can be because taxes are regressive or progressive. For the combined data set and the Streeterville sub-area, all five tests consistently indicate that taxes are regressive for our sample. An indication of the degree of regressivity is presented in Table 3 for the Streeterville sub-area. Test (3) indicates the highest degree of regressivity. The predicted assessed value to sales price ratio drops from 0.1227 for a sales price of $200,000 to 0.0767 for a sales price of $800,000. Based on Test (5), the Kochin and Parks test, the ratio drops from 0.1177 at $200,000 to 0.1056 at $800,000 indicating a much lower degree of regressivity.

For the other two sub-areas, the results are mixed. Tests (1), (2), and (4) indicate that taxes are uniform for the Sandburg Village sub-area, while Test (3) indicates regressivity and Test (5) indicates progressivity. For the Gold Coast sub-area, Tests (1) through (4) indicate regressivity while Test (5) indicates uniformity; that is, the Kochin and Parks test gives a different result from the more traditional tests.

Conclusion

This study explored the possibility of inconsistent results from alternative measures and tests of assessment uniformity for a sample of Chicago condominiums. As expected, the results indicate the existence of horizontal inequity; that is, units with the same market values having different assessed values. However, based on the coefficient of dispersion the level of horizontal inequity is within the range specified by the IAAO as acceptable.

The results also consistently show that there is vertical inequity, systematic price-related differences in level of assessment, for the entire sample and the Streeterville sample. However, opposite conclusions would be reached on the basis of the traditional tests versus the Kochin and Parks test for the Gold Coast and Sandburg Village samples. It should be remembered that these results may be applicable only to this specific data set. It is not known how representative this data set is of all the condominium units in the 11 buildings of our sample, in the study area, or in the North Township.

There are numerous extensions of this study that can be considered for future research. For example, a similar study based on 1984 assessed values would be of particular interest. Cook County is divided into four quadrants for assessment purposes and each quadrant is reassessed every four years. The quadrant in which the current study area is located was assessed in 1980 and reassessed in 1984. The 1983 assessed values used in this study reflect 1980 assessments updated to 1983 by the application of county-wide equalization factors. In addition, it is understood that the procedures for estimating assessed values of condominiums were improved by the Cook County Assessors Office between 1980 and 1984. A study based on 1984 assessed values could detect whether there was any improvement in assessment uniformity, at least for our sample.

A second possible extension of this study is to attempt to resolve the question of which test for vertical inequity is the most appropriate. It is important to resolve this question since we reach opposite conclusions on the basis of the traditional tests and the Kochin and Parks test for two of our sub-area samples, just as Kochin and Parks did for their King County, Washington, sample.

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CARLA TIGHE

Illinois Waterways

Illinois lakes and rivers contribute an important source of transportation for the state. Illinois has 1,110 miles of navigable waterways and also borders Lake Michigan for 60 navigable miles, and thus has access to the South via the Mississippi and to the Atlantic via the Great Lakes/St. Lawrence Seaway system. For this reason, Illinois has the largest inland commercial navigation system in the United States. The workings of this mode of transportation, however, are not widely understood. This article focuses on these workings, looking at the extent of the water transport system, the existing publicly and privately maintained infrastructures, and the role of Illinois waterways in the state's economy.

About the System

The chart shows contribution of each Illinois river to the 1,110 navigable miles in Illinois. The Mississippi, Illinois, and Ohio rivers constitute 91 percent of the total Illinois navigable mileage. Most traffic on the Lake Michigan shore is by what is known as deep-draft vessels. (Draft is the difference between the water level and the lowest point of the vessel under water). The Great Lakes/St. Lawrence Seaway can accommodate ships having drafts of up to 25.75 feet. But the maximum draft on the inland waterway system is only nine feet. Therefore, barges rather than ships are used on Illinois rivers.

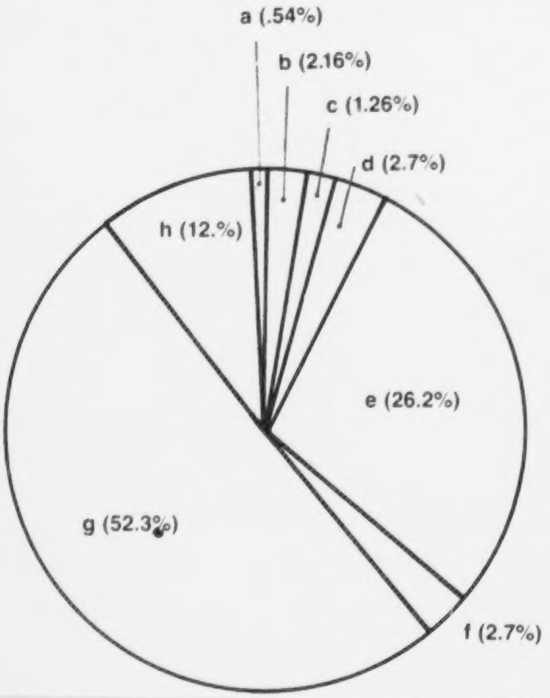
Infrastructure

A water transportation system depends on more than just river mileage. Also necessary are terminal facilities providing docks and cargo-handling. Illinois has quite an adequate supply of such facilities. Of the 102 counties in the state, 43 are located on navigable waterways, and 37 counties have one or more terminals. In total, 344 terminals operate in the state, each having one or more ports. Most terminals act as intermodal transfer points, where goods are moved from ships or barges to trucks or rail cars, and vice versa. Both private and public terminals border the shores of Illinois waters.

Approximately 75 percent of all of the state's terminals are privately owned by companies that ship their own products exclusively. The other 25 percent, or 86 terminals, are operated as public utilities.

The most active forms of government involvement in water transportation is achieved through 11 port districts created by the Illinois General Assembly in order to promote, plan, develop, and operate water ports. Their purpose is to attract recreational as well as commercial and industrial projects to Illinois shores. Port districts operate as separate entities and, for the most part, are financially independent of the remainder of the state government.

Illinois Inland Waterways*



a = Calumet River
b = Cal-Sag Channel (includes Little Calumet River)
c = Chicago River
d = Chicago Sanitary and Ship Canal
e = Illinois River (includes Des Plaines River)
f = Kaskaskia River
g = Lake Calumet
h = Mississippi River
i = Ohio River
j = Waukegan Harbor

Source: Illinois Department of Transportation
*Lake Michigan not included

Another way in which government affects water trade is through the use of Foreign Trade Zones. Authority to operate Foreign Trade Zones is granted to port districts by the federal government. Foreign Trade Zones, not considered part of the US, are enclosed areas located near major ports. Therefore, goods within the zone are not subject to US Customs laws. Foreign businesses can use the zones as places to keep commodities subject to import quotas, to exhibit items to American investors, or to combine imported and American goods. Thus the presence of Foreign Trade Zones in Illinois can attract both export and import trade by providing cost savings that otherwise would be foregone. Illinois presently has four Foreign Trade Zones, in Chicago, Tri-City Harbor (near Granite City), Peoria, and the Quad Cities. Another zone will open soon near Lawrenceville.

Economic Impact

Clearly, a substantial lake and river network actively operates within Illinois. But how much does this system mean to the Illinois economy? The most recent export and import statistics available are for 1983. During that year, deep-draft imports totaled 3 million tons, and deep-draft exports equaled 800,000 tons, making deep-draft vessels relatively more important for imports.

Barge loadings, in contrast, were of a much greater order of magnitude, 56.7 million tons. Much of Illinois exports rely upon barge transport. In 1980, Illinois waterborne exports and imports combined totalled 65.7 million tons valued at $20.6 billion. Overseas waterborne exports for the state were 37.2 million tons worth $9.4 billion. During that same year, the gross state product for 1980 was $138.5 billion. Hence, Illinois overseas waterborne exports represented 7 percent of gross state product.

A large proportion of Illinois exports are agricultural commodities such as corn, soybeans, and wheat. In 1980, Illinois was the leading agricultural exporting state in terms of both tonnage and value. The state was also the fourth largest manufacturing exporter. Other goods shipped on the inland waterway system include coal, chemicals, petroleum, sand, and gravel. The products shipped on the Great Lakes/St. Lawrence Seaway system consist primarily of coal, iron ore, and iron and steel products.

The waterborne commerce system also plays a key role in distributing imported goods throughout the state. Illinois imported 28.5 million tons on its waterways in 1980, valued at $11.3 billion. Not surprisingly, about 60 percent were petroleum products, and another 25 percent were manufactured goods.

Clearly, Illinois waterways provide an important source of transportation. Barges and ships are used both to distribute goods within the state and to allow Illinois to trade with other states and countries. The extensive navigable mileage, plus a well-organized infrastructure, provide cheap and efficient means of carrying millions of tons of cargo each year. These factors make Illinois waterways the largest inland commercial navigation system in the country.

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Illinois Business Indexes

The Illinois economy is expected to continue its expansion over the next two quarters. As Chart 1 shows, both the three-month (MA3) and six-month (MA6) moving average indexes increased throughout most of 1986. Further, the three-month moving average remained above the six-month moving average during virtually all of the past year. The indexes continued their strong upward movement through January 1987, indicating future growth in the Illinois economy.

Construction activity in Illinois has expanded in the past year. The expansion in activity (as measured by building permits) has been widespread, as most sectors of the Illinois economy have increased substantially over previous levels. In the past year, monthly building permits for residential housing units increased an average of 28 percent over months for the previous year. The value of residential housing units had an even larger increase, 49 percent over the previous year. The value of industrial buildings increased an average of 89 percent over the previous year. In addition, the value of stores and other mercantile buildings rose 49 percent over the previous year. The only series that showed declines on average was the value of office, banks, and professional buildings. It had an average monthly decrease of 21 percent for the past year.

ILLINOIS BUSINESS INDEXES

	Percent Change Jan 1986-Jan 1987	*Jan 1987*	*Dec 1986*	*Nov 1986*	*Oct 1986*	*Jan 1986*	*Dec 1985*
Leading Indicator(MA3)	13.75[h]	14.64	11.10	10.71	7.98	0.89	−0.26
Leading Indicator(MA6)	10.56[h]	11.22	9.16	8.60	7.17	0.66	−0.43
Employment-manufacturing (in thousands)[e]	-1.09%	922.3	922.2	922.5	921.4	932.5	943.1
Average weekly hours-manufacturing[e]	1.47%	41.3	41.6	41.3	41.4	40.7	41.9
Weekly earnings-manufacturing[e]	3.69%	$444.80	$446.37	$443.56	$443.39	$428.98	$442.88
Help wanted advertising-Chicago (1969 = 100)[a]	7.69%	98	121	109	105	91	104
Help wanted advertising-St. Louis (1969 = 100)[a]	−2.90%	67	62	71	63	69	67
Retail sales (in millions)[b]	1.67%	$4,637	$6,944	$5,651	$5,765	$4,561	$6,315
Coal production (in thousands of tons)	−10.05%	5,229	4,882	4,201	5,440	5,813	4,632
Petroleum products (in thousands of barrels)[e]	−17.42%	2,200	2,100	1,990	2,158	2,664	2,533
Vendor performance[g]	19.57%	55.0%	56.0%	56.0%	54.0%	46.0%	46.0%
Building permits (in thousands)							
Residential housing units	14.03%	2.259	2.971	4.169	4.087	1.981	3.068
Value of residential housing	42.75%	$163,055	$205,774	$283,167	$273,180	$114,224	$165,595
Value of nonresidential construction							
Industrial buildings	-32.41%	$12,776	$103,043	$13,277	$44,107	$18,901	$13,340
Office, banks, and professional buildings	9.07%	$61,793	$24,216	$21,526	$48,283	$56,652	$61,950
Stores and other mercantile buildings	125.61%	$24,415	$20,906	$23,708	$28,208	$10,822	$21,667
Other	77.88%	$3,056	$2,865	$5,141	$4,593	$1,718	$4,534
Consumer price index (December 1977 = 100)							
North Central US[c]	0.62%	—	177.1	—	176.5	—	176.0
North Central/population more than 1,250,000[c]	0.89%	—	181.0	—	180.3	—	179.4
North Central/population 385,000 to 1,250,000[c]	1.09%	—	176.1	—	174.0	—	174.2
North Central/population 75,000 to 385,000[c]	0.23%	—	171.9	—	172.3	—	171.5
North Central/population less than 75,000[c]	−0.58%	—	171.6	—	171.7	—	172.6
Chicago (1967 = 100)	2.45%	334.3	331.0	328.7	331.3	326.3	325.9
St. Louis (1967 = 100)	1.33%	326.7	—	323.8	—	322.4	—
		1986:III	1986:II	1986:I	1985:IV	1985:III	1985:II
Personal income (in millions)[d,e,f]	5.45%	$178,477	$178,797	$174,364	$173,178	$170,458	$169,561
Per capita personal income[d,e,f]	4.82%	$15,392	$15,442	$15,082	$15,001	$14,788	$14,732

[a] The Conference Board, *Help Wanted Advertising*, January 1987; [b] Latest month projected by BEBR; [c] Percent change between December 1985 and December 1986; [d] Percent change between 1985:III and 1986:III; [e] Recent month is preliminary figure; [f] Seasonally adjusted at annual rates; [g] Percentage of companies receiving slower deliveries; and [h] Represents absolute change (percent change not relevant).

Chart 1. Composite Leading Indicators (Average Percent Change in Base Indexes)

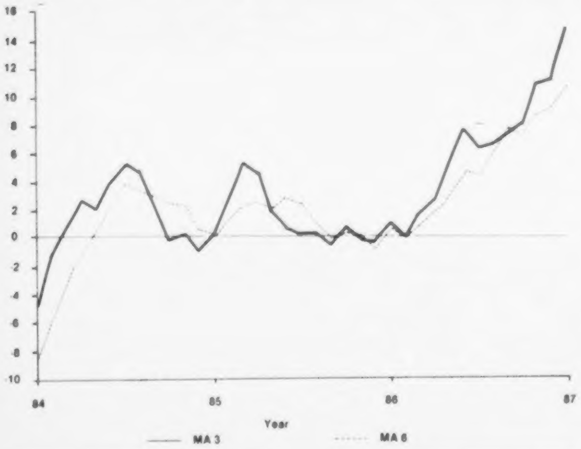


Chart 2. Residential Housing (thousands of units)

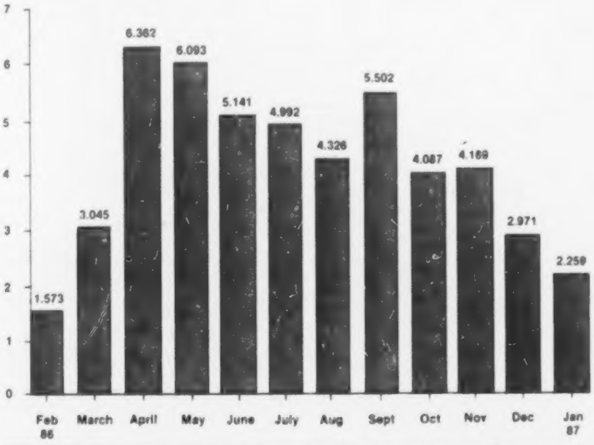


Chart 3. Value of Residential Housing (thousands of dollars)

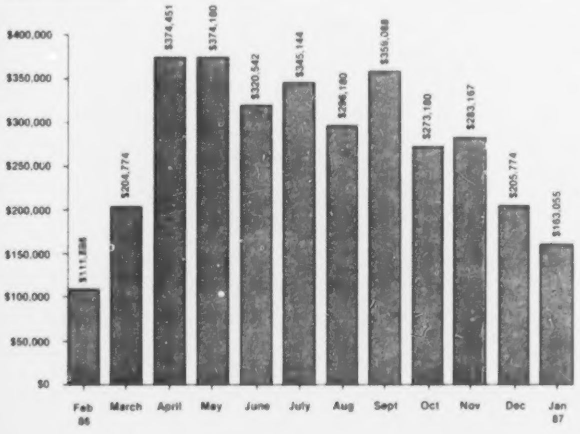


Chart 4. Value of Industrial Buildings (thousands of dollars)

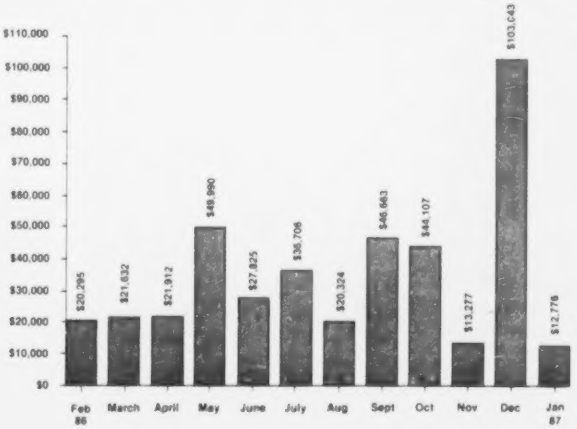


Chart 5. Value of Office, Banks, and Professional Buildings (thousands of dollars)

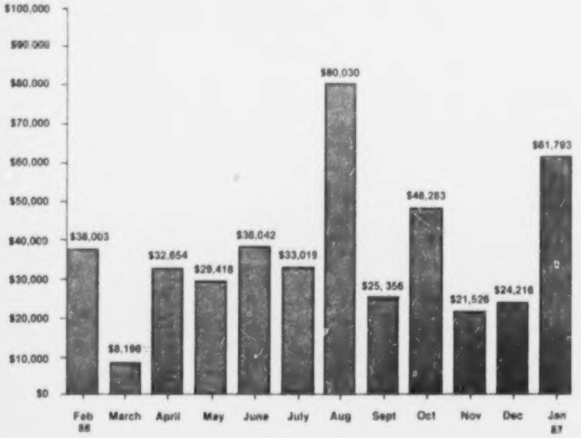
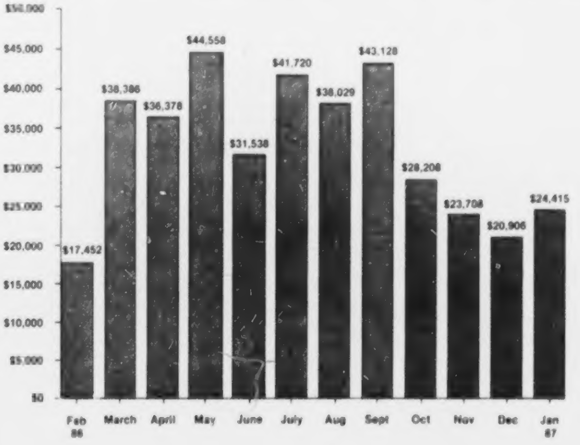


Chart 6. Value of Stores and Other Mercantile Buildings (thousands of dollars)



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Illinois Economic Outlook

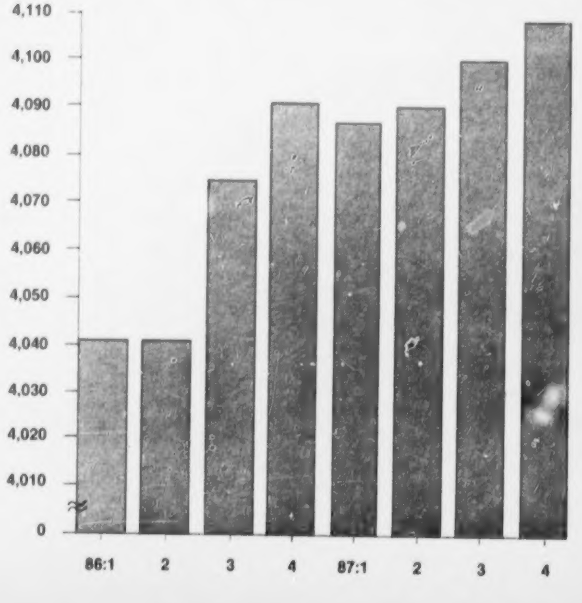
Illinois Seasonally Adjusted Employment

	History				*Forecast*			
	86:1	*86:2*	*86:3*	*86:4*	*87:1*	*87:2*	*87:3*	*87:4*
Total (private, nonfarm)	4041	4041	4075	4091	4087	4090	4100	4108
Mining	26	25	25	25	24	23	23	22
Construction	173	175	180	182	177	173	170	168
Manufacturing	936	922	920	923	907	901	900	897
Durable manufacturing	572	563	563	563	547	541	539	536
Primary metals	56	55	55	55	54	52	52	51
Fabricated metals	111	110	111	111	108	106	107	106
Nonelectrical machinery	141	138	136	137	129	126	125	125
Electrical equipment	121	118	118	118	117	116	116	115
Miscellaneous durables	144	142	142	142	140	140	140	139
Nondurable manufacturing	363	359	356	354	359	360	361	361
Food products	91	90	88	90	90	90	91	90
Printing and publishing	107	106	105	105	105	104	104	104
Chemicals	57	56	56	56	57	58	59	59
Miscellaneous nondurables	109	107	107	108	108	107	107	107
Utilities and transportation	278	277	278	277	275	273	271	270
Wholesale and retail trade	1169	1177	1191	1200	1207	1213	1218	1223
Services	1114	1120	1133	1138	1144	1151	1158	1166
Finance, insurance and real estate	344	345	348	350	354	357	359	362

Bureau of Economic and Business Research

Illinois private nonfarm employment showed a rise of 16,000 workers in the last quarter of 1986 according to figures released by the Bureau of Labor Statistics. (Private nonfarm employment excludes government and farm workers.) The Illinois Econometric Model forecasts that employment will be lower for the first two quarters of 1987 as compared to the fourth quarter of 1986. However, employment is expected to increase above 1986 levels for the last two quarters of 1987. Although jobs are likely to decrease in the first quarter of 1987, the accompanying chart illustrates the steady job growth for Illinois this year. The model predicts a level of employment of 4,108,000 workers by the fourth quarter of 1987, a 0.42 percent increase over last year.

Illinois Total Private Nonfarm Employment (in thousands)



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JOHN F. DUE

Proposed Application of the Illinois Sales Tax to Services

The issue of the application of the Illinois sales tax to services, under serious discussion on several occasions in the past, was revived by Governor Thompson's Budget Message proposal for the 1987–88 fiscal year, to extend the sales tax to "include personal, repair, entertainment, and business services effective 1 January 1988." The issue was also discussed, without recommendation, in the 25 February 1987 report of the Revenue Review Committee, chaired by Douglas L. Whitley. Because of strong opposition, primarily from the business community, the governor indicated in mid-May that he was dropping the proposal; but the issue is certain to arise again.

The Arguments for the Taxation of Services

Under the usual standards of taxation, there is no basic reason why sales taxes should be confined to commodities; the tendency to do so, with minor exceptions, in Illinois and many states, is more the product of historical accident than logic. The objective of a sales tax is to distribute the costs of governmental services in relation to consumer spending, with the usual and reasonable assumption that the taxes are shifted forward by the firms from which the tax is collected to the consumers of the products. Acquisition of service by households constitutes consumption expenditure in the same fashion as the purchase of commodities; there is no basic difference between the two that warrants different tax treatment. Consumers gain satisfaction from services just as they do from commodities.

Application of sales tax to consumer services offers several specific advantages. By application of the tax to services, a given sum of revenue can be raised by a lower tax rate, thus lessening pressure to evade and to make purchases outside the state. Discrimination in favor of persons who spend greater than average percentages of their incomes on services would be eliminated, as well as the incentive to spend more on tax-free services and less on taxable commodities. On services provided by firms already registered because they make commodity sales, application of the tax to the services they render would simplify both compliance and enforcement since all their charges would be taxable, instead of only part of them. The services sector of the economy is growing more rapidly than other sectors, and thus the elasticity of revenue relative to changes in total income would be increased.

It is also commonly argued that the taxation of services would make the tax less regressive or more progressive, since the portion of income spent on services rises as incomes rise. This argument would be valid if, in fact, all services could be taxed, but some of the most progressive ones, relative to income, cannot be reached: foreign travel, expensive education out of state, personal/household services, and the like. Various studies suggest that on the whole taxation of services does not significantly alter the distributional pattern, and taxation of some types will make the tax more regressive. But the other arguments for taxing services are significant.

Some objections raised against taxing services make no sense whatever. For example, it is sometimes argued that since persons pay tax on the purchase of a commodity it is unfair to require them to pay for cleaning or repairing it. There is no logic to such an argument; expenditures for cleaning and repair are consumption expenditures, just as those on the original purchases. Service establishments complain about potential compliance costs, but at present purely service establishments are favored over sellers of commodities.

The Primary Problem with General Taxation of Services

Despite the valid arguments for the taxing of services, in doing so one encounters a very basic problem, that of distinguishing between services rendered to household consumers and those supplied to business firms. As noted earlier, the rationale of sales taxation is that of distribution of tax burden in relation to consumer spending, through taxation of sales to household consumers. To tax business inputs, that is, purchases for business use, is contrary to this basic rationale, and is objectionable in several respects.

First, taxes resting on business inputs, like other business expenses, are certain, in general, to be passed forward to the final consumers. This occurs, however, in a haphazard and unplanned fashion as compared to the taxes on consumer expenditures on various goods, since the ratio of taxable inputs to final sale prices will vary widely. Secondly, and perhaps most seriously, taxing inputs places Illinois firms, particularly manufacturers, at a competitive disadvantage compared to those in states or in countries that have made strong efforts to exclude business inputs from tax. The European countries particularly have confined the burden of their sales taxes—which take the form of value-added taxes—to sales to final consumers. Thirdly, taxation of business inputs encourages firms to produce the inputs themselves or, with services, to provide the services with their own employees, rather than acquiring them from other firms and paying tax on their acquisition. By doing so they will pay tax only on the materials, not on the labor costs involved in production. Finally, choice of methods of production will be altered from the most efficient ones, since some are likely to be subject to more tax, per unit of final output, than others.

Illinois was very slow to recognize the desirability of confining sales taxes so far as possible to consumption purchases. There was little clear recognition, especially in early years of the taxes, of the undesirable consequences of taxing business inputs, and "taxing business" always has political appeal, even if it is illogical. To the lawyers who wrote and interpreted the law, it appeared perfectly logical to exempt sales for resale and sales of physical ingredients and parts from the tax as not being retail sales and yet to apply the tax to all other sales to business firms. The latter policy is completely illogical from an economic point of view and injures Illinois business.

The reluctance of Illinois and other states to change policy was, in part, recognition, stressed by tax administrators, that distinguishing between sales to consumers and sales for business use is difficult. Many commodities are used for both consumption and business use, and the retailer cannot determine use at the time of sales; even the purchaser may not know. The same system could be used for all business inputs as is now used for materials and parts and sales for resale: the purchaser can be required to present an exemption certificate to his supplier for all purchases for business use. This method is not foolproof, and some leakage would undoubtedly result, although West Virginia, and to a lesser extent Ohio, have used this system for decades without serious problems. But it is concern with the problem of escape that has particularly deterred Illinois from trying to exclude all business inputs, even though many business inputs are not used significantly for consumption purposes. Change has finally occurred in the last two decades by excluding industrial and farm machinery, items that are not used at all for consumption purposes, from tax.

Recognition of the undesirability of taxing business inputs when it is feasible to exclude them strongly suggests that if the sales tax is applied to services, it should not be applied to those services rendered primarily to business firms. For a simple example, suppose that bookkeeping firms are subject to tax. Their customers are given a strong incentive to hire additional staff and perform the bookkeeping within the firm. The firms most capable of doing so efficiently are the larger firms; smaller ones will be penalized by the tax. Similar considerations apply to legal services, computer systems analysis, and numerous others. Yet some of the proposals for taxing services make no distinction between these services rendered primarily to business and those of primary consumption use.

The problem remains, however, even if this route is followed, with services rendered primarily to households, but in part to business firms, as for example, repair. So long as no serious effort is made to exclude all purchases of goods by business firms, it can be argued that taxation of some services rendered to business firms is tolerable. But it must be recognized that this is only a second best approach, made necessary by the difficulty of excluding purchases for business use of goods and services of types also purchased for consumption.

In two respects, taxation of services provided to business firms is more serious than the equivalent taxation of commodities sold for business use. First, it is much easier for firms to provide services by their own employees instead of acquiring them from independent firms than it is to produce commodities. It is relatively simple for firms—at least larger ones—to undertake their own bookkeeping, accounting, or legal work; it is not nearly as easy for a firm to commence to produce commodities—furniture, for example—now purchased.

The second difference relates to interstate transactions. The chief source of leakage of revenue with the present sales tax is that of interstate purchases. With commodities, at least a physical object crosses the state line, though it may be difficult to enforce payment of tax on the purchases. But with services performed outside the state, nothing tangible crosses the border. This situation is not likely to encourage persons to get haircuts or do household laundry outside the state, but it is likely to do so with other services. Suppose, for example, that truck repair is taxable. A trucking firm, not wishing to do its own repair work, will have this performed out of state—and there is no way that Illinois could possibly tax it. Out-of-state firms coming into the state to do repair or cleaning in theory could be forced to register and collect Illinois tax, but many would escape. If an attempt were made to tax advertising service, including amounts paid for radio and TV advertising, in areas near state borders, as for example the Quad cities, the advertising could be done on stations outside the borders. States that have taxed advertising, as for example Iowa, have found it so difficult that they have abandoned the attempt. Florida under its 1987 law is attempting to tax out-of-state advertising on the basis of the portion that appears in Florida, but it is doubtful that this rule is constitutional or enforceable.

Special problems are raised by professional services. One major set of these services—engineering, consulting of all types, computer work, accounting—are rendered primarily to business firms, and application of tax is therefore objectionable. A second set, which involves a large portion of total service expenditures, consists of medical, dental, and related hospital services, legal, and general educational service. Expenditures on some of these are progressive relative to income. But as a matter of general social policy, governments have been reluctant to tax them. Legal services, which are related to obtaining justice, do not appear suitable bases for taxation.

Tax Treatment of Services by Other States

When the sales tax was first introduced in the early 1930s (first in Mississippi ~~in~~ 1932), it was applied (with the exception of two states) to sales of tangible personal property, and thus all services were free of tax. As in Illinois, there was no particular logic to the sharp distinction between physical commodities and services; to many legislators, however, it appeared feasible to tax all commodities, but not to tax all services; thus for simplicity, none of the latter were included. Many services, such as medical, appeared to be unsuitable for taxation. The other type of reasoning was illogical but influenced legislators: the argument that a tax on services was essentially a tax on the labor involved in rendering the services.

Only two states initially taxed all or virtually all services rendered to customers, as distinct from that provided by employees to employers, namely Hawaii and New Mexico, and these states continue to do so. South Dakota in 1979 broadened the base of its tax to cover virtually all services. But no other states followed this path (though it was discussed in several) until Florida added a very broad coverage of services by legislation in April 1987.

Gradually, however, as the states sought additional revenue, they brought in a few categories, under the sales tax or by a separate levy. Transient accommodations (hotels, motels) were ultimately made taxable in all states, at the state or local level. Public utility services, at least electricity, gas, water, and telephone, were made taxable in the majority of states, rental of taxable property in most, and admissions in a majority.

Ultimately, some states moved beyond these, to include a small additional number, and three states taxed a substantial range, but far from the general coverage of Hawaii, New Mexico, South Dakota, and, since April 1987, Florida.

Thus as the situation stands as of this writing, all states and/or local governments tax hotel and motel services; the majority tax rental of tangible personal property, and most utility services and admissions. Twenty-three states tax no other services, and two have added only laundry and dry cleaning; 14 have added a small number of additional services; and three (Iowa, Washington, and West Virginia) a broad range. Only Hawaii, New Mexico, South Dakota, and Florida apply tax to virtually all services.

These four states apply the tax by a general provision, making all services, commercial and professional, rendered to customers taxable except ones specifically exempted. New Mexico defines taxable gross receipts to include the amounts received "from performing services in New Mexico." Hawaii applies the tax "upon every person engaged or continuing within the state any service business." South Dakota applies the sales tax "upon the gross receipts of any person from engaging or continuing in the practice of any business in which a service is rendered."

The states that tax a broad, but not general, category of services do so by enumeration of taxable services; for example the Iowa law specifies 64 categories similar to those suggested for consideration in Illinois in the concluding section of the article, but including some business services. The states that tax services report no particular problems in doing so.

Other Problems with the Illinois Sales Tax

The Whitley Committee has reviewed the state sales tax in detail and pointed out features urgently needing change. Space permits only brief observations here.

The state has made several changes in the last two decades in the state-local sales tax picture that have complicated operation and, in some major instances, cost substantial revenue. First, the exemption of nonprescription drugs and medicines was a serious error, as the experience of other states had long demonstrated. Exemption of these items greatly complicated compliance and administration, while the expenditures on them represent only a small element in family budgets.

Secondly, the variations in the bases of the local sales taxes, particularly those arising from state law that allows them to tax food and farm and industrial machinery when the state does not tax these items, causes major unnecessary complications. The problem of the local taxes has been greatly aggravated by the action of home rule cities in imposing their own locally administered sales taxes on top of the state-administered local sales taxes. This was a colossal error that should never have been permitted by the state. Differences in local sales tax rates, while a source of nuisance, are tolerable and may be regarded as essential, but differences in coverage are not. The long-standing lack of local use taxes except on motor vehicles has cost revenue and causes possible distortions in buying patterns.

Beyond these obvious mistakes, serious questions can be raised about the exemption of food from the state levy, although politically, reversal is unlikely (though Washington state did so in 1982). The objective of food exemption, highly desirable by usual standards of equity, was to remove the tax burden from the lowest income groups. But in doing so, food expenditures of all families were unnecessarily removed from the coverage of the tax. If the principle of taxing consumption is accepted, there is no justification for exempting all food, when other, simpler and less costly methods are available to remove the sales tax burden from the poor, namely a system of credits against state income tax, refundable when the amount exceeds the family's state income tax liability.

Conclusions on Services and Recommendations for Change

The proposal to extend the Illinois sales tax to services had merit in terms of the principle of sales taxation although it proposed inclusion of many business services. The most important rule is that tax should be confined, so far as possible, to those services rendered primarily to individual households, and not applied to services rendered primarily to business firms. Thus a more logical list would be comparable to that of Iowa, in terms of major categories, as follows:

> Hotel and motel service, preferably to be brought under the sales tax rather than taxed by a separate levy; repair, cleaning, storage, and rental of all taxable tangible personal property, including all work on motor vehicles, taxable or not, and parking; repair and maintenance of real property, including such activities as interior decorating, pest control, security systems, lawn and garden care, well drilling, excavating, house moving; personal services, including beauty and barber shop work, massage, tanning and reducing salons, dance schools, dog training and grooming, flying schools, detective services, telephone answering; admissions and all commercial recreation, including golf and country club dues and charges, camp grounds; photographic work; employment agencies; and cable TV charges.

While some services to business firms would be taxed, most of the burden would rest on consumer services. These services should increase the sales tax revenue by as much as 10 percent. On the basis of the Iowa experience, most of the revenue would be yielded by beauty shops and barber shops, auto repair and services and other repair work, and admissions. To apply the tax to all services would risk the same strong adverse reaction as is occurring in Florida and injure the business climate of the state.

To meet other problems with the sales tax, several changes are urgently required, basically along the lines of the Whitley Committee report: (1) make nonprescription drugs and medicines taxable; (2) require uniformity of base of the local and state sales taxes, including those of the home rule cities (the home rule cities would be allowed to use higher rates; (3) require state administration of all local sales taxes, including those of the home rule cities. Another option would be possible increase in the state sales tax and use tax rate to 6.25 percent, with allocation of the sales tax portion on a point-of-sale basis, 1 percent to the municipalities, .25 percent to the county, with distribution of the additional state use tax by the state to the local governments. Local sales and use taxes would end, except that the home rule cities could levy up to 1 percent tax rates, the tax to be state collected.

These changes would solve the local-use-tax problem and tremendously simplify the operation of the taxes. These basic reforms, other than taxing services, would not significantly increase revenue, unless food were made taxable. But they would greatly simplify operation of the taxes. In the process, redrafting of the cumbersome and obsolete legislation would avoid confusion.

This article has not sought to consider the basic issue: should additional tax revenue be gained from extending the base of the sales tax or by an increase in the state income tax? The latter approach would be far simpler in terms of compliance and administration and usual standard of equity and can be justified on the basis that the Illinois income tax is one of the lowest in the country. The apparent shift by the governor in emphasis from broad taxation of services to this approach in mid-May has substantial merit.

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RONALD KRUMM AND NANCY MILLER

Household Savings and Homeownership

The choice of homeownership involves the investment of an often substantial portion of a household's accumulated savings in their residence. It is therefore likely that the decision to become a homeowner or maintain ownership carries with it a change in a household's pattern of saving. This study examines the relationship between a household's pattern of savings and the homeownership decision. The issues addressed include the extent to which savings accumulation may be altered prior to the attainment of ownership (in an effort, for example, to build up a sufficient home equity down payment) and whether or not there is a long-term effect of homeownership on the level and composition of savings. We also examine the extent to which increased home equity, associated with housing price appreciation, is transferred into nonhousing savings in order to achieve a more balanced investment portfolio.

Issues

For many households it is likely that the desired timing of a home purchase does not coincide with that at which normal household savings would be sufficient to meet the required home equity down payment. In the absence of any changes in savings accumulation, the choice would be either to postpone the home purchase or to purchase a less expensive home that would provide fewer amenities. In order to reduce the loss of homeownership and/or housing consumption benefits, an alternative response would be to increase savings in earlier years. To the extent that this occurs, the savings accumulation of households renting their residences but planning for ownership in the future will exceed the savings of similar households not intending to invest in housing.

Another factor influencing the differences in savings accumulation for purposes of homeownership is that investment of a substantial portion of savings in home equity is likely to restrict severely the liquidity of the household's investment portfolio. In order to reduce the risk of having to liquidate the housing equity in response to future income shortages or expenditure needs, a household may indeed, by the time of the home purchase, accumulate savings beyond the amount needed to cover the desired equity down payment. This response would increase differences in savings accumulation between renters who are and who are not intending to purchase a home.

The increased savings accumulation up to the time of a home purchase is different from the optimal pattern that would occur in the absence of tenure-choice considerations. Once the home is purchased, one alternative would then be to return to the optimal savings pattern by reducing the savings rate thereafter. In this case, the decline in the rate of savings accumulation shortly after the initial home purchase would occur and in the long run would wipe out any differences in savings accumulation between renters and owners. As mentioned above, however, investment of a substantial portion of a household's savings portfolio in owner-occupied housing is likely to alter the liquidity of the investment portfolio dramatically. This could lead to a desired increase in the level of nonhousing savings as well in order to cover unanticipated contingencies that might occur during the desired span of homeownership. While it is clear that at least the equity portion of the home investment is required by the time of the purchase, it may very well be that accumulation of the associated level of precautionary savings may be extended into the period of homeownership itself. Under such circumstances, the level of nonhousing savings after homeownership would again be built up to serve as a precautionary reserve. The result would be an increase in total desired savings of the households throughout the duration of homeownership.

Any long-lasting effects of homeownership on the level of household savings may be examined by evaluating savings patterns of households that switch from homeownership to renting. A normal relationship between savings accumulation, income, and consumption patterns might indeed lead to the case where the decision to liquidate housing equity is based on the desire to use accumulated home equity to support consumption in the retirement years. Unfortunately, the data used in this analysis are not rich enough to evaluate such patterns fully. However, they do allow for analysis of households that switch from homeownership during earlier periods in the life cycle. This decision might be made for reasons having nothing to do with savings accumulation, in which case the longer term effects of homeownership on total life savings could be examined. However, it is also possible that the decision to liquidate the investment in owner-occupied housing depends on financial considerations whereby the accumulated savings in the form of housing equity is required to meet divergences in consumption and/or earnings not sufficiently covered by accumulated nonhousing savings. Under such circumstances partial depletion of total savings after the switch in tenure status could be expected at least in the short run. The extent to which this is the dominant factor involved can be assessed by examining the difference between the increase in nonhousing savings after the tenure status change compared with that which would be implied by the transfer of all of the home equity into nonhousing savings.

Empirical Findings

The empirical analysis is based on a sample of approximately 4,000 households included in the University of Michigan Panel Survey of Income Dynamics. These data provide information on each of the households for each of the years from 1970 through 1979. The focus of this empirical study is on how previous tenure patterns affect nonhousing savings as of 1977, as well as how future (1978 and 1979) tenure choices affect nonhousing savings accumulation at the earlier (1977) date. Before turning to the results of that analysis, we examine the relationship between housing appreciation over time and the corresponding patterns of home equity to shed light on the extent to which increases are reflected in equity.

Retention of Housing Price Appreciation Gains in Home Equity

The table shows the housing values for the 2,106 households owning their residences continually from at least 1970 through 1977. For these households the average home value increased from $18,759 in 1970 to $37,606 by 1977. If these households did not participate in the housing market over this period, the 85 percent increase in house values reflects the extent of nominal house price appreciation over the period and corresponds to a 26 percent increase in real terms (above the increase in overall price levels during this period). To the extent that some of the households chose to upgrade their housing either by making improvements or by moving to a new home, this increase in housing prices provides an upper bound on the actual rate of housing appreciation.

Average Housing Values for Continuous Owners

	Home Value	*Remaining Mortgage Principal*	*Mortgage Payment*
1977	$37,606	$6,554	$1,071
1976	30,727	6,713	868
1975	28,492		
1974	25,882		
1973	23,570		
1972	21,185	6,252	956
1971	19,768	6,102	747
1970	18,759	6,220	725

The remaining mortgage principal increased only 5.4 percent, however, from $6,220 in 1970 to only $6,554 in 1977. At the same time, home equity increased 123.7 percent from $12,539 in 1970 to $28,052 in 1977. Thus, of the $18,847 average increase in home values over the period, $15,513 or 82 percent was retained in home equity. This amount provides an upper bound on transfers out of equity into, for example, nonhousing savings instruments or for consumption purposes. Some households will upgrade the residence, which likely involves additional transfers to equity from nonhousing savings. A question that remains unanswered, however, is whether the implied transfers of housing appreciation gains out of home equity would have been greater if it were not for the inhibiting costs associated with refinancing mortgages.

The nature of the findings presented in the table also holds as well for households beginning ownership only after 1970 and maintaining that status at least through 1977 (377 households of the sample). Although the average home price was lower for these households than those considered in the table, average housing price appreciation was similar in magnitude regardless of the starting date of homeownership. A striking difference between the results in the table and those for households starting homeownership after 1970 is that the average remaining mortgage principal for the latter is substantially larger both in absolute terms and relative to the home value. This is most likely due to the fact that many of the households included in the table had owned for a considerable amount of time before 1970. In results similar to those in the table, however, for the most part home equity increases associated with housing price appreciation were maintained as home equity regardless of the starting date of the initial home purchase.

A quite different picture emerges for households that shifted from ownership to rental status between 1970 and 1977. While only 198 households made such a change, housing appreciation rates for the vast majority were substantially less than for the households considered earlier. This was especially true for the years just prior to the change from homeownership. Moreover, of the increases in housing values over the homeownership period only 41.2 percent was retained as home equity by the time of the house sale, while average yearly mortgage payments increased over time as compared with those of continual homeowners. This suggests that there was either substantial refinancing of mortgages at higher interest rates or increased housing transactions for households in this group involving relatively lower equity investments. These results suggest an intimate tie between the financial side of homeownership and the decision to switch from that status.

Savings in Nonhousing Instruments

The home equity and home value patterns evaluated provide insights into the relationship between homeownership decisions and the home equity portion of a household's investment portfolio. The other portion is that invested in nonhousing instruments. The approach taken to determine the effects of homeownership decisions on patterns of nonhousing savings was first to control for the influence of the many other demographic characteristics on savings accumulation over the life-cycle. Having controlled for those effects that would alter nonhousing savings among households in the absence of the homeownership decision, the relationship between alternative tenure choice patterns from 1970 through 1979 and savings in nonhousing savings instruments as of 1977 was estimated.

Holding all other factors the same, and, for illustrative purposes, presuming a 6 percent rate of interest in 1977 on investments in nonhousing savings instruments, the difference in the level of savings in nonhousing instruments in 1977 by households that were homeowners at least since 1970 and that continued to be so at least through 1977 and households that were renters over the same period is estimated to be about $16,000. As indicated in the previous section, on average only as much as $3,300 of this difference may be attributed to the transfer of past housing appreciation into nonhousing savings instruments. Thus, in addition to the value of home equity this finding suggests that continual homeownership is also associated with a higher level of nonhousing savings compared to households that continually rent their residence. Any inferences from this result must be qualified, however, in that many unobserved conditions facing households that restrict them from being able to accumulate savings (for example, unanticipated, extraordinary expenditure required by a chronic illness in the family) may very well also restrict their ability to have been homeowners.

Given that many of the households considered were homeowners for an unobserved length of time prior to 1970, perhaps a more appropriate comparison of nonhousing savings levels would be between households that became homeowners only between 1971 and 1976 and continual renters over the entire period. For households becoming homeowners in 1971 and continuing as such through 1977 compared with continual renters, the findings indicate that the difference in nonhousing savings in 1977 was only about $5,300. Even if $3,300 of this was due to a transfer out of home equity (from housing appreciation) there still remains a net higher level of accumulated nonhousing savings and, in conjunction with their home equity levels, a higher level of total accumulated savings. Indeed, a similar result is found for households that started homeownership in 1972, although the differential is slightly less. As might be expected, however, for households that started homeownership only by 1976, the level of nonhousing savings is estimated to be less than that of continual renters by about $4,900. The overall results suggest that the levels of savings accumulated in both nonhousing savings instruments and in home equity are positively related to the duration of homeownership, at least for the period considered here.

Effects of past homeownership on savings of households that switched from homeownership to renting are determined by examining savings in nonhousing instruments for such individuals in 1977 relative to households that never owned over the entire sample period. Renters as of 1977 who last owned in 1970 are predicted to have about $3,743 more in savings than comparable households who did not experience homeownership at least through 1977. This amount corresponds on average to only 59 percent of the equity in housing they had in 1970, suggesting a substantial depletion of the home equity for consumption in the intervening years. For households last owning in either 1971 or 1972, the savings differential is estimated to be $2,693 and $1,717, respectively. On the other hand, for those households having last owned their residence in 1976, the savings differential in 1977 is estimated to be $9,020, which is only 60 percent of the average 1976 home equity for the same individuals.

The above findings suggest that while households that did experience homeownership in the past had, on average, higher levels of nonhousing savings than did households that had continually rented, the implied level of nonhousing savings in years after the switch to rental status was considerably less than the level of home equity in the last year of homeownership. These results suggest a liquidation of home equity for purposes of meeting needed expenditures; perhaps those that led to the sale of the home to begin with. However, the results also suggest that there is a tendency for a further build-up of nonhousing savings thereafter.

Finally, we examine the effects of nonhousing savings accumulation in periods prior to the switch from rental to homeownership. For households renting through 1977 but choosing to become homeowners in 1978, the estimated value of accumulated nonhousing savings in 1977 was greater than that of continual renters by about one-half the value of initial home equity chosen in 1978. The funds required to meet the other half of the down payment presumably comes from depletion of other nonhousing savings accumulated up through 1977 or increased savings out of income between 1977 and 1978. For households renting through 1978 and choosing homeownership only by 1979, nonhousing savings accumulated by 1977 relative to continual renters is predicted to increase by about 36 percent of the initial home equity down payment made two years later. These results suggest that a substantial portion of the home equity down payment for first-time homeowners is accumulated in years prior to the change in tenure status above that which would normally be accumulated. The rapidity of this accumulation in years prior to the attainment of homeownership appears neither gradual nor sharp. For example, using the earlier example of a $15,000 home equity down payment in either 1978 or 1979, $5,425 of the $7,520 in additional savings accumulated through one year prior to the time of the housing investment would already have been accumulated by two years before the tenure change. This amounts to a difference of slightly over $2,000 accumulated in the intervening year (about 30 percent of the total). This illustration suggests that the extent of savings increase for the purpose of homeownership is likely to be highest in periods close to the time of the home purchase but that there is a substantial accumulation for the same purpose in earlier years. An additional implication of the findings is that the time difference between the decision to become a homeowner and the actual purchase is not likely to be trivial, especially given the impact of such a decision on the need for savings accumulation for the home equity down payment.

Concluding Remarks

The analysis presented here has focused on the implications of alternative tenure choice patterns for the structure of household savings accumulation. The results often indicate substantial alterations in the patterns of household savings accumulation as a result of the decision to invest in owner-occupied housing. The empirical findings yield information about the savings patterns of different sets of households involved at various stages of the homeownership process. The results indicate patterns of increased savings accumulation in periods prior to the attainment of homeownership above that which would normally occur. The estimates suggest that this may account for as much as one-half of the initial home equity amount. At the time of the home purchase, nonhousing savings are drawn upon substantially in order to meet the equity down payment but soon after the level of nonhousing savings is again increased. Thus, having speeded up savings accumulation in order to attain homeownership, the new homeowners do not afterwards adjust the total level of savings in the direction of becoming the same as that which would have been made had they not chosen to own their own homes. In fact, even though housing appreciation for homeowners leads to future increases in total savings, our results indicate that the level of nonhousing savings are also increased compared with households choosing rental status. The findings for households that were homeowners for at least all of 1970 to 1977 indeed suggest that the build up of nonhousing savings may be substantial. Whether or not preferential tax treatment of owner-occupied housing is responsible for this build-up or whether it is due to other savings portfolio considerations is not addressed, however. Finally, the decision to change away from homeownership is found to be intimately tied to a depletion of the resulting home equity in years prior to as well as at the time of the home sale. A likely explanation of this finding is that unanticipated needs or income shortages lead to the decision to liquidate the home equity portion of household savings.

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DAVID F. LINOWES

Is the Merger Mania Good for the Nation?

Mergers and acquisitions have become of major concern in Washington and on Wall Street in recent months, and this concern goes beyond the investigations of illegal insider trading. Increasingly, voices are being raised charging that the accumulations of tremendous pools of stock of major corporations by manipulators, bankers, and others are having adverse effects on our economy, and both Congress and the executive branch seem to be racing to design restrictive regulations or legislation.

Last year there were 15 mergers per working day, totalling over 3,000. Twenty-four of those mergers were for over $1 billion each, totalling over $200 billion. Since those employed by the 100 largest mergers alone supported families of 20 million people, obviously the stakes are high.

Mergers and acquisitions are not new; they have been taking place since the 1890s. Then, it was largely the merging of railroads, especially the smaller, weaker lines, in order to create major stable networks. That was followed by major merger movements in the 1920s and 1960s. John D. Rockefeller in his acquisitions of various oil properties was on a merger binge much of his life in building Standard Oil; J. P. Morgan, when putting together US Steel, made many acquisitions. The present day General Motors is an accumulation of Chevrolet Corporation, Buick, Oldsmobile, Cadillac, and others.

Parallel with 1920s

It is not difficult to draw a parallel between some of today's developments and some of those of the 1920s that led to the Great Depression of the 1930s and the creation of the Securities and Exchange Commission. In the 1920s stock manipulators quietly acquired large blocks of stock in a company then stimulated buying by the general public through false rumors and fictitious trading so that the price of the stock ran up. Finally, on the sly they would dump their holdings onto the public at highly inflated prices.

The basic technique, common then and now, involves the manipulation and accumulation of a massive block of stock in a target company and then cashing in at substantially higher prices. Although the old practices of creating phony trading transactions and the spreading of false rumors are illegal today, the same effect can be created by letting it be known that a target company is "in play." They do this by announcing their interest in a company after they have quietly acquired a large block of stock. As a matter of fact, the SEC requires such public notice when a 5 percent stake in a company is acquired.

Causes of Merger Movements

Merger movements are stimulated when one or more of three basic conditions exist: when there are major technological breakthroughs; when turbulent economic conditions result in depressed stock prices; or when new disruptive international developments arise.

All three of these elements have converged in recent years. Technologically, computer, and communications breakthroughs are revolutionizing economic and organizational relationships; production processes are going through dramatic changes; robots are replacing people; smokestack industries are giving way to service industries.

On the economic front, stock prices have been so depressed relative to the values represented that it is cheaper to take over an entire going business than to build new plants and break into new markets. Much of this was caused by the fact that stock prices had not caught up to the high inflation rates of the past.

Dramatic international developments have been caused by the explosion of Japanese and West German industries, seizing important segments of our automobile, steel, and electronics markets.

In addition to these triggering phenomena, other factors have contributed in important ways.

High Professional Fees

Of unusual significance are the enormous fees paid to bankers, lawyers, and accountants in mergers. For example, in one law firm in New York specializing in mergers, every partner earned $880,000 last year.

On the cover of the 24 November 1986 issue of *Fortune Magazine*, was a picture of a young man from the Midwest named David Wittig, born in Kansas, educated at the University of Kansas. At 31, he earns $500,000 a year working for Kidder-Peabody. His 18 merger deals since joining the firm brought in over $10 million in fees. And, Wittig's earnings are not a rarity on Wall Street. Students out of college with no experience are paid $100,000 per year.

When questioned about the outlandish earnings of young people, a chief executive officer in another Wall Street firm, Frederick H. Joseph of Drexel-Burnham Company said, "in an environment of phenomenal profits and unprecedented fees, what difference does it make. The difference amounts to a rounding error." David Stockman, with no background on Wall Street, is reputed to have begun his career at a minimum of $1 million a year.

What do investment bankers do to earn these kinds of fees? They birddog potential targets and acquirers, then layout and help execute scenarios for bringing the two corporations together, including financing the package. Most investment banking firms today have in their computers extensive analyses of most public corporations to assist in these operations. Obviously, they get paid well for this service.

For example, in the Revlon takeover, valued at $1.83 billion, investment bankers received over $100 million in fees. Drexel-Burnham Lambert, Inc., alone received $60 million; Morgan Stanley & Co., about $30 million. It should be born in mind that some of these merger projects can take as little as six or even three months.

Changed Banking Practices

New fierce competition and loosening of government regulations have brought many changes in investment banking and in commercial banking practices and techniques. Examples are the use of "junk bonds," "leveraged buyouts," and "arbitragers." These are not new, but their widespread use *is* new. Some of these techniques have been used by the Pritzker family in Chicago for three generations.

The "junk bond" is a bond with a high rate of return, but carrying a low credit rating, generally BBB or lower. In 1986, about $35 billion worth of junk bonds were issued ($15 billion by Drexel-Burnham Lambert alone); presently over $1/4 trillion in junk bonds are outstanding. Paul Volcker, Chairman of the Federal Reserve Board, has spoken out strongly against them, as has Harold Williams, former Chairman of the SEC; but, from the investor's viewpoint, they are no riskier than the common stock of the same corporation. From the corporation's perspective, however, they do create burdensome obligations for high fixed costs.

Leveraged buyouts occur when the assets of an acquired company are used to take over the target corporation itself. This can be accomplished either by putting the assets up as security for a loan to finance the transaction or arranging in advance to sell a division of the target corporation immediately upon the completion of the transaction.

Arbitragers (Arbs) have come to play a critical role in the merger game. The basic original concept of arbitrage is that if stock is selling at a lower price in one market, say London, than in another, for example, New York, the arbitrager buys the stock in London and sells it in New York.

In the same manner, if someone announces that he will offer $65 a share at a certain date for a stock and it is now selling for $60, the arb will buy it at $60 and wait for that date to arrive to sell it, gambling that the transaction will be consummated.

The now-discredited Ivan Boesky had acquired considerable wealth as an arbitrager and a unique reputation for the uncanny ability to predict a merger, this, of course, before his exposure for trading on insider information. Before his fall, Boesky claimed to have had an arbitrage fund of $2 billion. T. Boone Pickens is known to have an equivalent-sized fund.

Arbitragers have so extended their tentacles that they are redefining how to accomplish a takeover. A potential raider now simply solicits the Arbs and buys their blocks of stock in his target company, thereby side-stepping SEC regulations. This is how a Canadian real estate company, Campeau, took over Allied Stores, which owns such well-known retailers as Brooks Brothers and Ann Taylor.

Beatrice Foods in Chicago was taken over by a Wall Street investment banking firm in the same manner. Arbs owned 80 percent of the stock and sold it to Kohlberg, Kravis, Roberts and Company. The acquirer then proceeded to dissect the company.

Mergers' "Newspeak"

All this razzle-dazzle in Wall Street has given birth to a merger "newspeak." The term, "raider," is self-descriptive: He is the principal player who leads the charge into what is generally unfriendly territory. That is how T. Boone Pickens captured Mesa Petroleum and Carl Icahn took over TWA.

No entrenched executive is going to look kindly at such an attempt to take over his company. After a certain amount of huffing and puffing, he may discretely send an emissary to try to buy the raider off. In "greenmail" the raider is paid a price by the company higher than the then current market for the stock. Last year there were about 50 such greenmail transactions. Saul Steinberg was bought off from raiding Walt Disney with greenmail. And thereby incumbent officers continued to hold onto their jobs.

If the raider cannot be dissuaded by greenmail, then management may try "shark repellents." These involve such tactics as staggering the terms of the members of the board of directors or the issuance of stock with disproportionate voting rights.

Or, it takes a "poison pill" such as selling off a highly desirable division or incurring huge debts. Phillips Petroleum took a poison pill to fend off T. Boone Pickens in his attack by incurring debts totaling $4.5 billion. Now, however, analysts wonder whether the tactic may prove poisonous to Phillips itself and, therefore, threaten its solvency.

When a management begins to feel that all is lost, it may decide to relax and enjoy it by use of "golden parachutes": incumbent executives enter into contracts with their corporation in which the corporation agrees to make large severance payments to the executives in event of a takeover and the loss of their jobs. Sometimes the amounts are quite startling. In the Revlon takeover, it is reputed that the golden parachute for the chief executive officer alone was about $20 million.

When a takeover by an unfriendly raider appears inevitable, the incumbent management might peddle the company to a friendly corporation. This friendly takeover corporation is called a "White Knight." Instead of a White Knight, management may bring in a "White Squire." A White Squire is a friendly investor who agrees to buy a large block of the target company's stock, thereby insulating it from the hostile attack. Not infrequently this tactic backfires, and the White Squire seizes the company for himself, removing the same executives who invited him in.

Pros and Cons

All of this activity obviously stirs up strong reactions. Andrew C. Sigler who is President of the Business Roundtable, an organization made up of chief executives of 200 major corporations charges,

"It is nothing but a grubby asset play. They are acquiring the greatest accumulation of wealth of all time—greater than the Rockefellers or the Rothschilds—they are doing it by snapping it out of companies, thus damaging the capability of the economic system to perform."

In response, T. Boone Pickens, self-appointed spokesperson for aggressive corporate acquirers, observed,

"The only real stake that many managers have is their job. The 200 members of Business Roundtable own less than three-tenths of one percent of their companies. *Fortune's* survey of May 1986 showed that 9 percent of Fortune 500 CEO's own no stock in their companies. No wonder they think like bureaucrats instead of like entrepreneurs."

Mergers have always had important effects on companies, their employees, and the communities in which they are located. In recent years the impact has been much broader, deeper, and immensely more significant than in the past, largely because corporations themselves have changed. Although they are called by the same name, corporations have taken on a dramatically different concept. They are now quasi-public institutions with social responsibilities along with profit responsibilities. They carry many of the rights and responsibilities of citizenship, and they have become so large and powerful that corporations often have more significant impact on the lives of more people than many political jurisdictions.

Arguments against Mergers

There are a number of justified arguments against this feverish activity. When a merger results in closing or moving plants or offices, it may disrupt a community, adversely affecting employees and officers. Sometimes a new parent company may siphon off excess cash, making the acquired company more vulnerable to economic downturns. Management that spend much of their attention in acquiring other companies may overemphasize keeping the current price of the stock high, leading to a concentration on short-term profits, or to what is delicately called "imaginative accounting," which could result in misleading financial reporting. And when large debts are incurred to effect the merger, the cost of carrying that debt could be devastating.

Sometimes a takeover is accomplished through a leveraged buy out by its own officers. This action strikes me as inherently wrong. Officers have a fiduciary responsibility to the stockholders of the company they manage. If they believe that by taking certain actions they can increase the value of a company's stock, then they have a moral (and perhaps legal) obligation to take such actions on behalf of all the stockholders.

Arguments Favoring Mergers

On the other hand, there are arguments favoring this merger activity. Aggressive mergers are the market's protection against mismanagement. An incumbent management that is not functioning effectively has no right to a first claim over corporate resources just because of incumbency. The assets belong to the shareholders.

A constructive merger transaction may reinvigorate drifting management and stimulate dormant resources. When a stronger company acquires a weaker or smaller company, new financing is made available, as are wider distribution facilities and new executive talent. Through a merger the deadening hand of nepotism can be removed.

International competition is a powerful force in today's business environment. Seventy percent of our products are competing with foreign manufactured products. In order to achieve the economies of scale so a company can be competitive, size is often critical.

Conclusion

What does all of this add up to? Obviously, no merger is neutral. I am convinced that discreet, thoughtful mergers are an important ingredient of our economy, keeping it stimulated and ever advancing. It is what a major figure in 20th century economic thought, Joseph Schumpeter, described almost a half century ago as "destructive capitalism." "Creative destruction," Schumpeter argued, "gives capitalism its vitality."

It is unmistakable that a constructive, well-planned merger strengthens a corporate unit and stimulates renewal, changing yesterday's inertia into fresh challenges today. I should caution that in evaluating a merger in today's climate, it is important to keep separate the process from the fact. Too often the press and the public do not keep them separate, nor do too many Congressmen.

Some steps in the process have been abused. Trading stock on the basis of insider information is not only illegal, but it distorts the constructive goal a well-intentioned merger seeks to accomplish. "Greenmail" cheats the public stockholders.

The role of arbitragers likewise frequently tends to so manipulate the merger process so as to cast an unsavory shadow on the function itself, leading to disruptive practices by both management and acquirer.

In short, it is apparent that the merger process has been abused, and regulation of that process, therefore, is justified and necessary. One approach might be to require a minimum holding period for stock—say six months—before it could be voted in an acquisition action.

I want to emphasize that in those situations where incumbent managements are doing well—both for the long term and short term—actions by uninvited raiders without any business purpose other than short-term personal gain could be harmful to the companies and our economy.

However, in those situations where managements have been lethargic and self-serving, there is justification for change and the implementation of a fresh approach through the merger route. Therefore, short of restraint of trade and unfair competition, I would not recommend regulatory restrictions on the merger function itself, as distinguished from the process. Free market forces should be allowed to have full play.

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Illinois Business Indexes

There is increased uncertainty regarding the economic outlook for Illinois. The composite leading indicator depicted in Chart 1 provides mixed signals. The three-month moving average of the indicator (MA 3) has declined, while the six-month moving average (MA 6) has risen. MA 3 has edged downward from 14.64 in January to 13.88 in March; MA 6 inched upward from 11.22 in January to 12.48 in March.

The decline in MA 3 does not necessarily indicate that the Illinois economy is headed for a downturn. Instead, it may represent a temporary variation in the overall upward trend of the series. Stronger evidence of an impending decline in the state's economy would be provided by these indicators if the three-month moving average were to fall below the six-month moving average and remain there for four consecutive months.

Inflation has accelerated in Chicago and in the North Central region as a whole. The charts illustrate the year-to-year percent change in the CPI for Chicago and for the North Central region. The percent change in the Chicago CPI of 3.58 percent for the year ending March 1987 represents the largest increase in the last two years (Chart 2).

For the North Central region as a whole (Chart 3), the year-to-year increase in prices averaged less than one percent for the one-year period ending April 1986 through the one-year period ending December 1986. However, as the chart shows, in February 1987, prices in the North Central region increased 1.77 percent over February 1986. The charts for the North Central region for various population sizes also depict a similar acceleration in inflation for the early months of this year (Charts 4, 5, 6). The CPI's for the coming months will provide an indication of whether this is a temporary increase or the beginning of an upward trend in inflation.

Illinois Business Indexes

	Percent Change Mar 1986-Mar 1987	*March 1987*	*Feb 1987*	*Jan 1987*	*Dec 1986*	*March 1986*	*Feb 1986*
Leading Indicator(MA3)	12.20[a]	13.88	14.45	14.64	11.10	1.68	–0.07
Leading Indicator(MA6)	11.77[a]	12.48	12.46	11.22	9.16	0.71	–0.11
Employment-manufacturing (in thousands)[b]	–0.46%	925.1	926.5	922.3	922.2	929.4	929.8
Average weekly hours-manufacturing[b]	0.98%	41.3	41.5	41.3	41.6	40.9	40.1
Weekly earnings-manufacturing[b]	3.26%	$447.69	$448.62	$444.80	$446.37	$433.54	$423.06
Help wanted advertising-Chicago (1969 = 100)[c]	20.21%	113	113	98	121	94	93
Help wanted advertising-St. Louis (1969 = 100)[c]	–2.86%	68	70	67	62	70	70
Retail Sales (in millions)[d]	1.79%	$5,224	$4,698	$4,637	$6,944	$5,132	$4,355
Coal production (in thousands of tons)[b]	–6.20%	5,145	5,010	5,229	4,882	5,485	5,309
Petroleum products (in thousands of barrels)[b]	–20.26%	1,995	2,100	2,000	2,110	2,502	2,650
Vendor performance[e]	10.00%	55%	52%	55.0%	56.0%	50.0%	48.0%
Building permits (in thousands)							
Residential housing units	36.95%	4.170	2.521	2.259	2.971	3.045	1.573
Value of Residential housing	52.55%	$312,391	$192,823	$163,055	$205,774	$204,774	$111,698
Value of nonresidential construction							
Industrial buildings	22.80%	$26,564	$6,136	$12,776	$103,043	$21,632	$20,295
Office, banks, and professional buildings	339.26%	$36,002	$41,551	$61,793	$24,216	$8,196	$38,003
Stores and other mercantile buildings	–6.00%	$36,081	$25,312	$24,415	$20,906	$38,386	$17,452
Other	266.69%	$4,701	$6,037	$3,056	$2,865	$1,282	$1,693
Consumer price index (December 1977 = 100)							
North Central US[f]	1.77%	179.5	178.5	178.3	177.1	—	175.4
North Central/population more than 1,200,000[f]	1.84%	183.2	182.5	182.1	181.0	—	179.2
North Central/population 360,000 to 1,200,000[f]	2.01%	177.8	177.2	177.2	176.1	—	173.7
North Central/population 50,000 to 360,000[f]	1.88%	175.3	173.6	173.9	171.9	—	170.4
North Central/population less than 50,000[f]	1.29%	174.0	172.9	172.5	171.6	—	170.7
Chicago (1967 = 100)	3.58%	335.5	334.2	334.3	331.0	323.9	326.4
St. Louis (1967 = 100)	3.01%	328.8	—	326.7	—	319.2	—
		1986:IV	1986:III	1986:II	1986:I	1985:IV	1985:III
Personal income (in millions)[b,g,h]	4.03%	$180,153	$178,757	$179,622	$174,013	$173,178	$170,458
Per capita personal income[b,g,h]	3.41%	$15,513	$15,490	$15,029	$15,051	$15,001	$14,788

[a] Represents absolute change (percent change not relevant). [b] Recent month is preliminary figure. [c] The Conference Board, *Help Wanted Advertising*, March 1987. [d] Latest 3 months projected by BEBR. [e] Percentage of companies receiving slower deliveries. [f] Percent change between February 1986 and February 1987. [g] Seasonally adjusted at annual rates. [h] Percent change between 1985:IV and 1986:IV.

Chart 1. Composite Leading Indicator (Average Percent Change in Base Indexes)

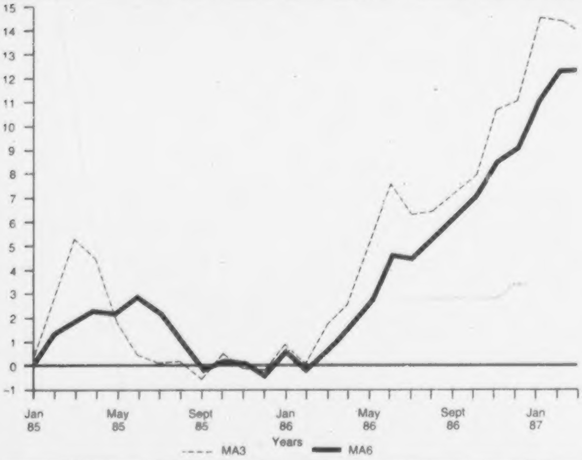


Chart 2. Year-to-Year Percent Change in Chicago CPI (1967 = 100)

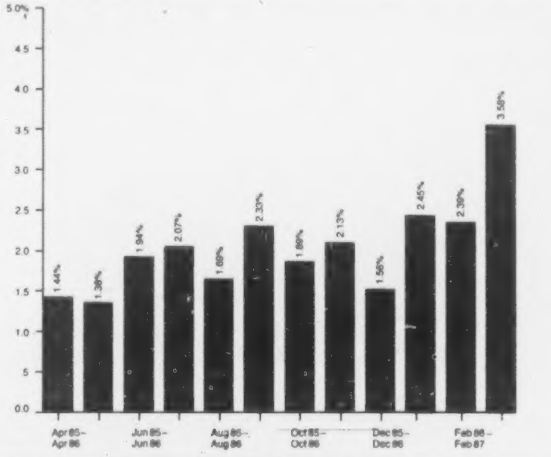


Chart 3. Year-to-Year Percent Change in North Central Region CPI (Dec. 1977 = 100)

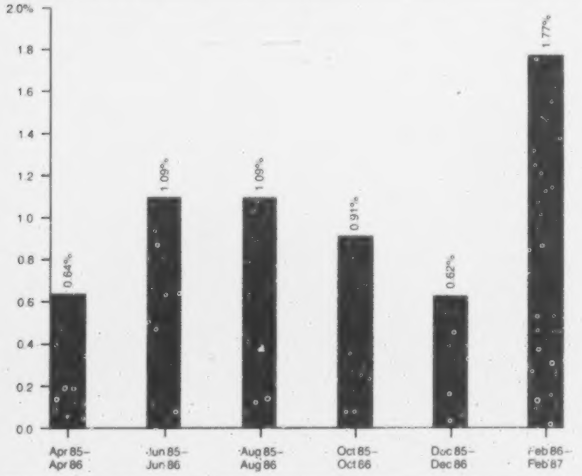


Chart 4. Year-to-Year Percent Change in North Central Region CPI—Population over 1,200,00 (Dec. 1977 = 100)

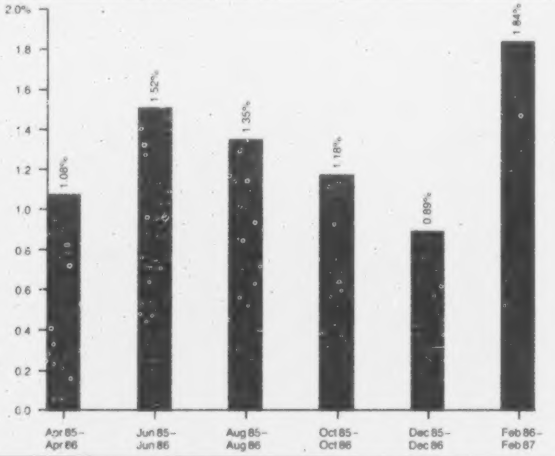


Chart 5. Year-to-Year Percent Change in North Central Region CPI—Population 360,000–1,200,000 (Dec. 1977 = 100)

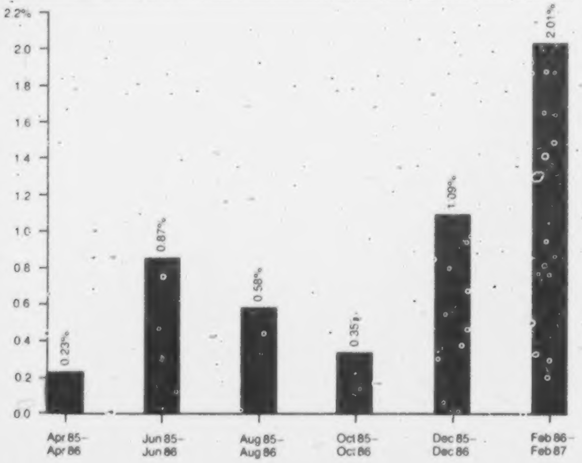
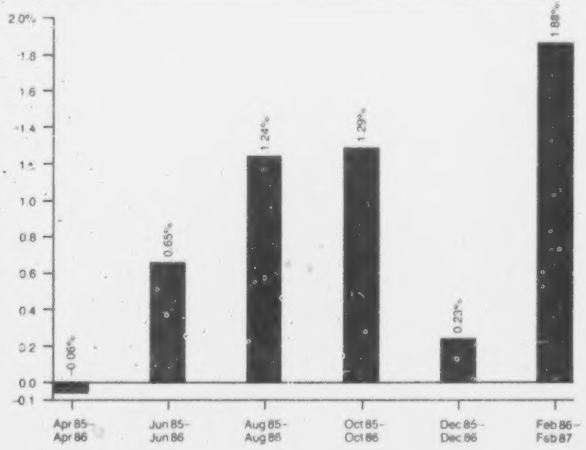


Chart 6. Year-to-Year Percent Change in North Central Region CPI—Population 50,000–360,000 (Dec. 1977 = 100)



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Illinois Economic Outlook

Illinois Personal Income (Seasonally Adjusted)

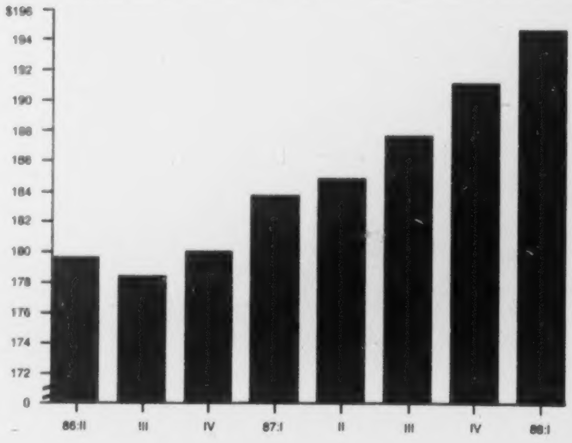
	History				*Forecast*			
	86:II	*86:III*	*86:IV*	*87:I*	*87:II*	*87:III*	*87:IV*	*88:I*
Personal Income (in millions)	$179,662	$178,757	$180,153	$183,814	$184,764	$187,676	$191,154	$194,602
Mining	$1,181	$1,155	$1,130	$1,098	$1,071	$1,061	$1,060	$1,060
Construction	$7,832	$8,039	$8,083	$8,016	$7,819	$7,702	$7,636	$7,579
Manufacturing	$28,684	$28,871	$29,334	$29,705	$29,783	$30,039	$30,380	$30,524
Nondurable manufacturing	$10,756	$10,767	$11,081	$11,392	$11,528	$11,690	$11,852	$11,893
Durable manufacturing	$17,928	$18,104	$18,253	$18,313	$18,255	$18,349	$18,528	$18,631
Utilities and transportation	$10,169	$10,314	$10,312	$10,544	$10,572	$10,675	$10,791	$10,916
Wholesale and retail trade	$22,748	$23,085	$23,355	$23,799	$24,227	$24,657	$25,094	$25,523
Services	$30,295	$30,791	$31,256	$32,851	$33,286	$34,192	$35,144	$36,133
Finance, insurance and real estate	$11,562	$11,869	$12,196	$12,855	$12,833	$13,079	$13,339	$13,616

Bureau of Economic and Business Research

Illinois personal income for 1986 was $178 billion, an increase of 4.8 percent over 1985. After a slight dip in the third quarter of 1986, personal income rebounded and continued growing into early 1987. The Illinois Econometric Model forecasts that positive growth will continue through the beginning of 1988. The forecasted personal income growth rate for 1987 is 3.5 percent.

All nonfarm private sectors of the state economy except construction and mining are projected to experience positive growth through the first quarter of 1988 (see the table). Personal income from mining decreased 8.8 percent in 1986, and is forecasted to fall 4.5 percent in 1987. It is anticipated that wholesale and retail trade, along with services and finance, insurance and real estate will continue to grow faster than state personal income as a whole. Nondurable manufacturing is expected to show improvement through 1987, with a 5.4 percent annual growth rate.

Illinois Personal Income (in billions of dollars)



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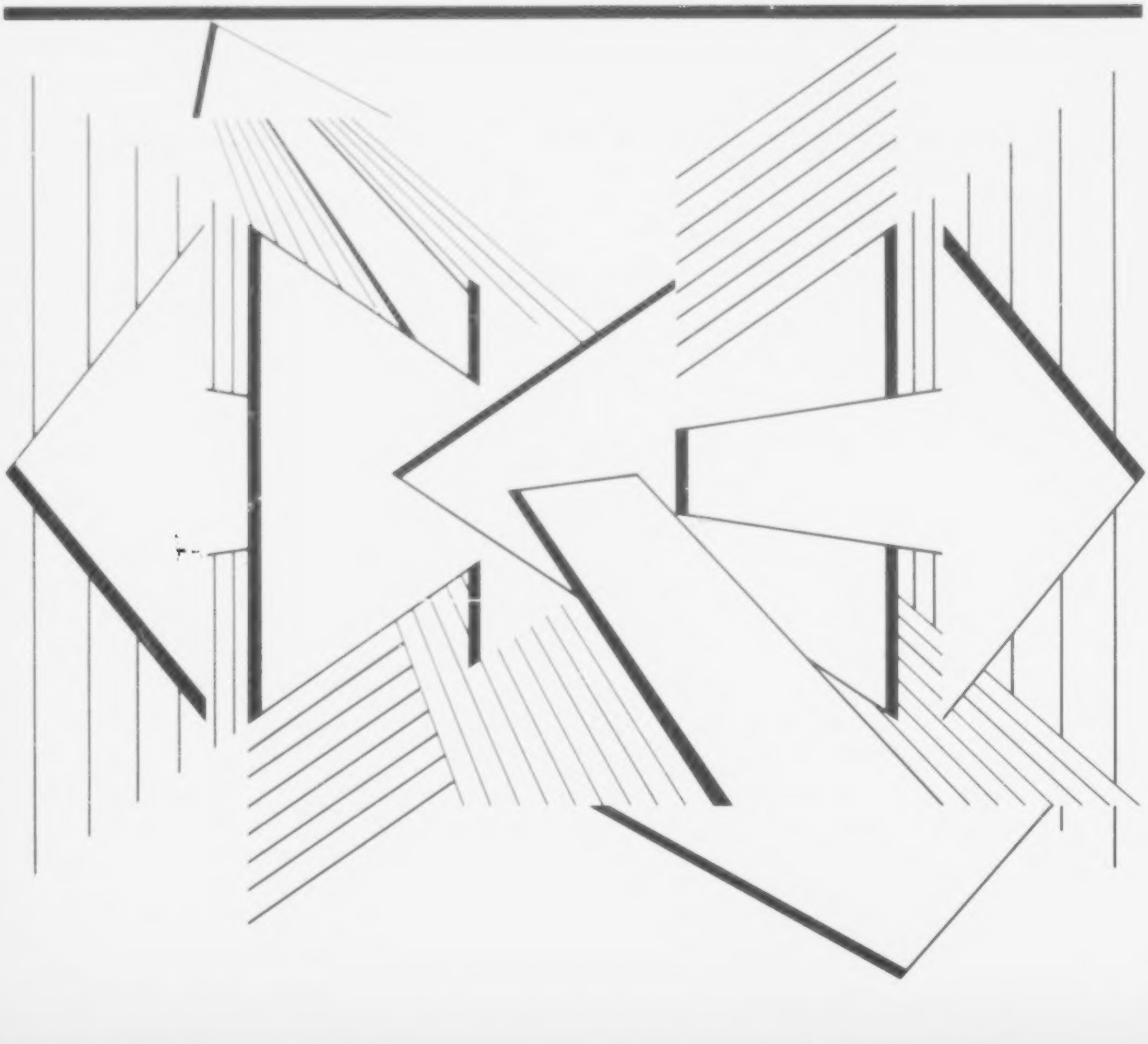

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WILLIAM R. BRYAN

The Federal Budget Turns Restrictive

Evidence presented here suggests that fiscal actions have moved toward restriction in recent years. This conclusion emerges from a review of federal fiscal developments during the period since 1980. An analysis of the period involves the consideration of two sets of contrasting forces, one expansive and the other restrictive. On the one hand, it is clear that the marginal net tax rate during the period from 1984 to early 1987 is markedly smaller than during the 1980–1983 period. This means that, given an expansion in income, recent and current increases in tax revenues net of income transfers are less than before. In this sense, fiscal actions are stimulative. But, on the other hand, in successive recent years there has been a tightening in the fiscal framework considered as a whole. Increases in balanced-budget GNP, a meaningful measure of the overall impact of fiscal actions, slowed markedly in 1985 and 1986.

The first part of this article is a brief review of traditional theory concerning the way federal fiscal actions affect the economy. Next, there is a summary of fiscal developments during the period from 1980 to 1986. Following this, there is a review of the changing configuration of the current account surpluses serving to offset the federal deficit. Finally, a set of conclusions is drawn.

Theory

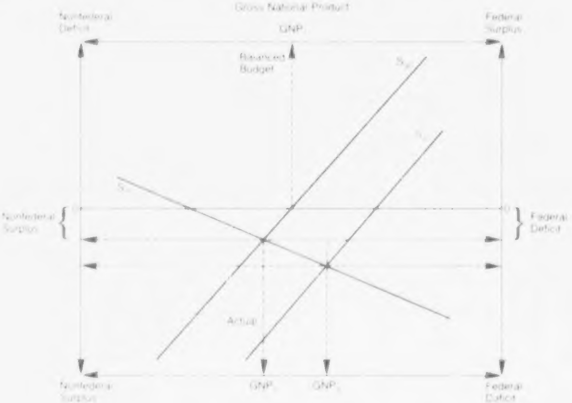
Changes in the impact of fiscal policy may be judged by changes in the level of GNP at which the federal budget would be in balance. Rapid increases in balanced-budget GNP are conducive to increases in actual GNP. An expansion in balanced-budget GNP means that there is an increase in the federal deficit corresponding to any level of GNP. Thus, any net surplus (or deficit) position of the nonfederal sectors leads to a larger flow of GNP. Larger flows of GNP are brought about in the process by which the federal deficit (or surplus) is fitted to match the nonfederal sectors' surplus (or deficit). In contrast, sluggish increases or declines in balanced-budget GNP exert a restrictive force upon the economy.

Fiscal policy relates to taxing and spending initiatives of the federal government. Federal tax receipts result from a combination of two factors. One factor consists of the set of rules specifying the process by which households and economic units calculate their tax liabilities. Economists often summarize that set of rules in a tax function. The second factor is really a set of results, including aggregate income, or GNP. If both the tax function and aggregate income are known, total tax receipts can be calculated.

Presumably, the size and composition of federal expenditures are determined by national priorities or other political considerations. Such expenditures are unlikely to be strongly related to aggregate income in the short run. To the extent that there is a relation, it is probable that federal expenditures will decline as income increases, chiefly reflecting declines in unemployment compensation and other cyclically sensitive transfer payments.

The federal deficit/surplus function is created by subtracting the expenditures function from the revenues function. For illustrative purposes, that function is shown as S_g in Chart 1, and its scale is shown on the right. The horizontal scale is aggregate national income. As drawn, the federal budget moves toward surplus as aggregate income expands.

Chart 1. Federal and Nonfederal Budget Schedules



Similarly, it is possible to specify budget positions for the nonfederal sectors (households, state and local governments, and the foreign sector). Although no supporting evidence is presented, we offer the conjecture that the nonfederal budget also moves toward surplus as the economy expands. The nonfederal budget function is labeled S_{nf} in Chart 1.

Equilibrium income is determined at the point where the federal deficit/surplus function intersects the nonfederal budget function. In nonequilibrium positions, the gap between the functions is closed by unplanned inventory changes, so that at all times the federal deficit (or surplus) just equals the nonfederal sectors' surplus (or deficit). In Chart 1 the federal sector is in deficit and the nonfederal sectors are in offsetting surplus. Aggregate income is shown as GNP_0.

For the federal budget to be in balance, it would be necessary for aggregate income to reach GNP_1 (shown on the top axis). But for that to occur, it would be necessary for the nonfederal function to shift upward to the right (to the north-east). Factors that would contribute to such an upward shift include an expansion in consumption, a rise in investment, an increase in state or local government spending (alternatively, a cut in state and local taxes), or an increase in net foreign investment (a decline in imports and/or a rise in exports). The combination of such factors implies a strongly expanding economy.

A shift or rotation of the S_g schedule to the right (to the south-east) may also be regarded as expansionary. Factors contributing to such a shift or rotation would include either increases in federal expenditures or transfers, tax reductions, or all three. Factors leading to movements in the S_g schedule also lead to changes in balanced-budget GNP. Expansive fiscal actions serve to expand balanced-budget GNP. Restrictive actions serve to reduce balanced-budget GNP.

Although specific fiscal policy shifts contribute in a predictable way to changes in the economy, actual GNP depends, as indicated, upon both the S_g and S_{nf} schedules. Moreover, because there is a substantial overlap between the factors that determine the slope and position of the two schedules, it is unlikely for one schedule to change without introducing movement into the other.

The slope of the S_{nf} schedule is a major determinant of the impact of fiscal actions. The slope shown in Chart 1 indicates that the aggregate of the nonfederal budget schedules moves toward surplus as income expands. As drawn, expansive fiscal actions (a shift from S_{g0} to S_{g1} in Chart 1) result in a rise in income to GNP_2 and a movement of the federal budget toward increased deficit (with a corresponding increase in the nonfederal surplus). In contrast, tax increases or expenditure cuts lead toward a reduction in income and a movement toward budget surplus.

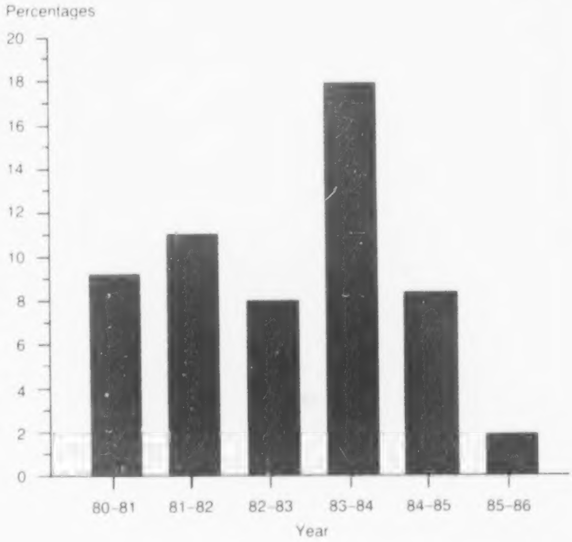
In the example discussed earlier and illustrated in Chart 1, the concomitant shift in the nonfederal schedule from the change in the federal schedule was not shown. In fact, however, the movement in the nonfederal schedule tends to offset partially the effect of shifts in federal fiscal policy. Even so, the qualitative results shown in Chart 1 are not affected.

In short, even though it is useful to pay attention to shifts in balanced-budget GNP as an indication of the stimulative or restrictive thrust of fiscal actions, these shifts yield only limited predictive insights. For the federal budget schedule, S_g, is only one blade of the scissors. The other blade consists of the nonfederal schedule, S_{nf}. As indicated, the federal deficit (or surplus) and the associated level of aggregate income (*GNP*) are forged at the intersection of the federal and nonfederal budget schedules.

Developments during the 1980s

Rates of growth in balanced-budget GNP during the 1980s have been uneven. From 1980 to 1983 annual increases in balanced-budget GNP averaged 9.4 percent (see Chart 2). All of 1980 and 1981, as well as three-fourths of 1982, reflect the planning of the administration of President Carter. From 1983 to 1984 there was a 17.8 percent jump in balanced-budget GNP, an extremely expansive shift. Since that time, however, the growth in balanced-budget GNP has slowed markedly. Each of the past two years has registered a tightening compared with its preceding year. Balanced-budget GNP rose only 2 percent from 1985 to 1986. It is in this sense that recent years have witnessed a progressive fiscal tightening.

Chart 2. Changes in Balanced-Budget GNP



It is necessary to use words carefully in interpreting fiscal policy in the 1980s. Considered as a whole, it is clear that the fiscal setting in recent years is expansive compared with the setting during the 1980–1983 period. In that period, the estimated tax rate net of transfers averaged 0.332, indicating that 33.2 cents was taxed from incremental dollars. In the last three years (1984–1986), the average net tax rate has fallen, such that only 21.4 cents net of transfers is taxed from each dollar. In common parlance and with reference to these two time frames, fiscal policy has eased.

There is no ambiguity regarding what has happened to the size of the deficit in absolute dollar magnitudes. It has grown. In the 1980–1986 period there was a cumulative deficit of $1,019 billion (see the Table). In addition, the business sector incurred a cumulative deficit of $699.5 billion. The sum of these two deficits for the 1980–1986 period was $1,718.5 billion. The cumulative offsetting-sector surpluses were generated by households ($1,009.1 billion), state and local governments ($334.8 billion), the foreign sector ($360.5 billion), leaving a discrepancy of $14.1 billion.

Sector Surpluses and Deficits, 1980–1986 (in billions of dollars)

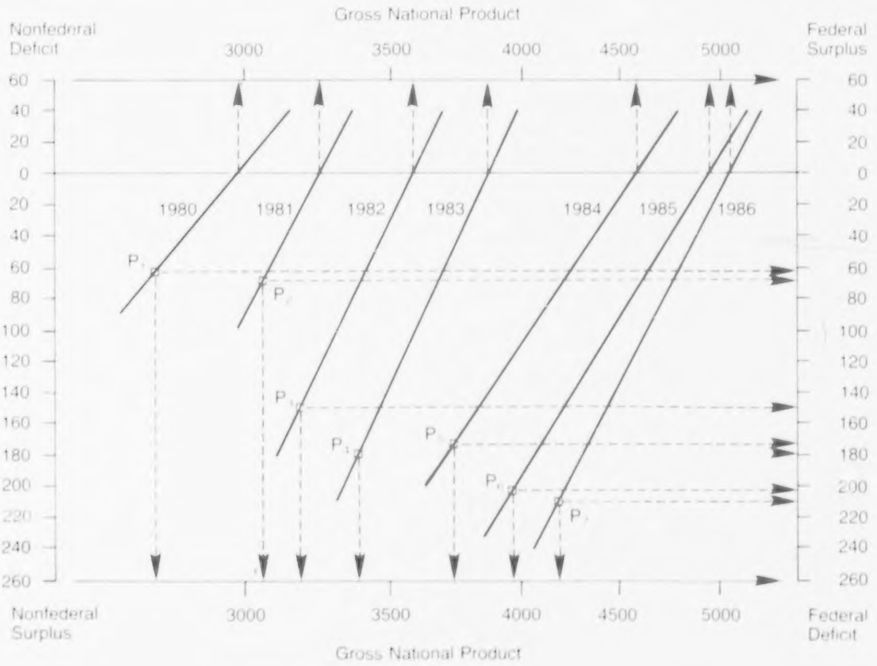
Nonfederal Budget Positions	*1980*	*1981*	*1982*	*1983*	*1984*	*1985*	*1986*	*1980–1986*
Households	136.9	159.4	153.9	130.6	168.7	143.3	116.3	1,009.1
Businesses	–95.5	–124.4	–44.1	–40.7	–156.0	–116.6	–122.2	–699.5
State and local governments	26.8	34.4	35.1	47.5	68.5	61.7	60.8	334.8
Foreign	–13.0	–10.6	1.0	33.5	90.7	115.2	143.7	360.5
Discrepancy	6.1	5.0	0.0	5.1	–1.9	–5.6	5.4	14.1
	61.3	63.8	145.9	176.0	170.0	198.0	204.0	1,019.1
Federal budget position	–61.3	–63.8	–145.9	–176.0	–170.0	–198.0	–204.0	–1,019.0

Chart 3 shows only the federal budget schedules. The positions of P_1 through P_7, denoting actual GNP and actual federal deficits, suggest that the nonfederal schedules are likely to slope downward (as illustrated in Chart 1). In fact, however, their slopes and positions are not known, and there is every presumption that the schedules bounce around. There were substantial shifts in the behavior of the underlying sectors during the 1980–1986 period.

From 1980 to 1983, there were three chief factors accounting for the marked rise in the federal deficit. From 1980 to 1983 the federal deficit rose from $61.3 billion to $176 billion, increasing from 2.24 percent to 5.17 percent of GNP. The bulk of the rising federal deficit was reflected in a sharp decline in the net position of the business sector. Whereas the business sector incurred a $95.5 billion deficit (3.5 percent of GNP) in 1980, by 1983 its deficit was only $40.7 billion (1.20 percent of GNP). Another major portion of the rising federal deficit was accommodated by a marked shift in the funds position of the foreign sector. In 1980 foreigners were net borrowers of $13 billion, the mirror image of the US net export surplus. In 1983 foreigners were net lenders of $33.5 billion, a reflection of the US trade deficit.

Even though the absolute dollar magnitude of the federal deficit rose $28 billion from 1983 to 1986, it declined slightly relative to GNP. The increased dollar volume of the deficit was accounted for chiefly by a further shift in the foreign sector toward surplus on funds account (from just under 1 percent of GNP in 1983 to 3.41 percent of GNP in 1986).

Chart 3. Federal Budget Schedules, 1980–1986



Desirable Fiscal Policy Developments

Federal expenditure and tax developments can be judged usefully in terms of the extent to which they contribute to the realization of public policy goals. Federal expenditures make claims on the use of real resources. The cost of committing resources to one use is that they are unavailable for alternative uses. Presumably, we want the set of federal expenditure programs that most faithfully reflects the political goals of the population.

Given the political decisions that define federal expenditures, what remains is to devise a tax structure that most contributes to economic or political objectives. The menu of alternative objectives, sometimes mutually exclusive, includes price level stability, high employment (low unemployment), budget balance, distributional equity, and so forth.

Over the past few years, the issue receiving most attention has been the federal deficit. There has been strong public interest in reducing the deficit. Even so, it is unlikely that the public would support a deficit-reducing policy that would involve a weakened economy and increased unemployment. Hence, it is important to evaluate fiscal policy measures in terms of their prospective impact on both the federal deficit and the economy. Two questions are of major importance: (1) Can a tax increase lead to a smaller federal deficit without adversely affecting the economy? (2) Can a tax cut lead both to an expansion in the economy and toward a smaller federal deficit?

A tax increase sufficient to overcome year-after-year trends in expenditures growth is likely to lead to increased revenues and a smaller federal deficit, but it is also likely to lead to a weakened economy. For a tax increase to lead both to a smaller federal deficit (or a surplus) and to an expanded economy, the nonfederal schedule, whatever its slope, must shift upward. To lead to an expansion in GNP, all or some combination of the following would need to occur. Households would need to increase their consumption; businesses would need to invest more; households and businesses would need to import less; and the business sector would need to export more.

On its face, there is superficial plausibility to the notion that such beneficial developments would result from a tax increase. It is popularly believed that an increase in federal taxes would contribute to interest rate declines, thereby stimulating investment and consumption spending. By an extension of that reasoning, it is possible to imagine that the nation's net export position would be improved. Even though these ideas are popularly held, there is essentially no evidence to support them.

A tax cut is likely to contribute to an expansion in income but to an enlarged federal deficit. A tax cut can lead to a smaller federal deficit under two conditions. One condition relates to the slope of the nonfederal schedule. If it is upward sloping, a tax cut can lead to a reduced federal deficit. The other condition relates to shifts in the nonfederal schedule, explainable on the basis of traditional doctrine. The Kennedy-Johnson tax cut in 1964 was based on a combination of such traditional Keynesian notions. The Reagan tax cuts were based on a somewhat different set of beliefs (that is, so-called Supply-Side Economics). As it turns out, the Kennedy-Johnson tax cut was followed by a movement of the federal budget into surplus. The Reagan tax cuts have been followed by larger deficits.

Concluding Remarks

As stated in the outset, recent changes in balanced-budget GNP show some movement towards restriction. Even so, the marginal net tax rate continues to be substantially smaller than during the early 1980s. Whatever interpretation one may wish to make of our current fiscal stance, the growing shortfall from balanced-budget GNP provides evidence that the fiscal environment has become increasingly inappropriate.

Two points emerge from the foregoing analysis. First, it is clear that there is no fiscal action that can be counted on to achieve both high employment and an improved federal budget position. Second, it is clear that the impact of fiscal policy is critically dependent upon the shape of and potential movements in the nonfederal schedule, not the federal schedule. Whatever the shape of the federal schedule, what is needed are strong upward shifts in the nonfederal schedule. Within the present environment, there are two meaningful sources of such shifts. One is the business sector. What is needed is a strong expansion in business investment in plant and equipment. The second is the foreign sector. What is needed is a strong movement toward a net export surplus.

In the near-term future, a strong expansion in business investment by domestic corporations is unlikely. Even though tax reform may have a positive affect on real investment in the long run, its short-term impact is likely to be adverse. In contrast to domestic corporations, foreign businessmen are making important capital investment decisions. They are shifting their wealth portfolios from dollar-denominated financial assets into real assets.

Some improvement in this nation's net export position is a reasonable prospect. There has been a marked and a sustained weakening in the value of the dollar. It is important to recognize that the shifts in currency values have missed important sources of our trade imbalance, such as Korea. It is also important to recognize that the declining value of the dollar is a two-edged sword. It means that absolutely necessary imports cost us more and that similarly price-inelastic exports bring us less. Notwithstanding such considerations, it is plausible to believe that the changed currency values can result in an expansion in exports and a slowdown in the growth of imports. The short-term shift can be important and can convert itself into a force persisting over several years.

Although minor, such improvements in business investment and in the nation's net export position have already begun to drive the federal budget toward surplus. Even with such small shifts, we can expect about a $50 billion decline in the federal deficit during calendar 1987. Such an improvement is likely to go largely unnoticed. But if such shifts are sustained, the federal deficit can be effectively erased.

DIXIE M. BLACKLEY

Working Wives and Residential Structure: Evidence from the Chicago Metropolitan Area

There has been a major change in residential location patterns over the past four decades. Locational patterns in the metropolitan US have been characterized by an historic trend of population redistribution from central cities to their surrounding urban areas. The proportion of the US metropolitan population residing within central city boundaries declined from 57 percent in 1950 to 40 percent in 1980. In Chicago, the central city's share of the metropolitan population fell from 57 percent in 1960 to 42 percent by 1980.

This shift in residential location has been accompanied by a major socio-economic change. Namely, labor force participation rates for married women have increased dramatically. The participation rate for married women who are living with their husbands increased from 23.8 percent in 1950 to 52.1 percent in 1980, with nearly 12 percent of the increase coming in the 1970s.

Most studies explaining why people move to the suburbs have emphasized the trade-off between access to central employment in the city versus cheaper housing services and residential space in the suburbs. This study shows that the rapid growth of two-earner families (that is, married women in the work force) and the decentralization of metropolitan employment are facts that also need to be considered in analyzing residential location patterns. Beyond that, this article specifically considers the interaction between optimal housing consumption and residence location.

The data and methodology used in this study are presented in the next section. Following this is a discussion of the results and implications. The article concludes with a short review of the findings.

Data and Methodology

The study utilizes a sample of nonelderly, married, renter households derived from the 1975 metropolitan Chicago *Annual Housing Survey* and from its *Journey to Work* supplement. Average annual income in the sample is $18,867 for two-earner households and $12,750 for one-earner households. A similar income differential remains even after controlling for residence and workplace locations. Two-worker households tend to be younger and more educated than their one-worker counterparts. About 65 percent of two-earner households are childless couples. Working wives earn an average of $6,894, and their husbands earn $11,571. Working mothers earn lower average annual incomes than other working wives. Working women travel shorter distances to work and are more likely to use public transit than working men.

Before attempting to evaluate housing demand and residence location, it is necessary to examine the variation of housing prices in different areas. By specifying gross rent as a function of dwelling unit, neighborhood, and locational characteristics, the relative contribution of a particular housing attribute to the rental value of a typical dwelling unit can be identified. The relative contribution of nonlocational attributes is assumed to be identical for all directions from the city center while locational effects may vary with direction. Noncentral employment centers are identified in five directions from the city center by examining the distribution of employment in the Chicago metropolitan area. The intrametropolitan variation in the price of per unit of housing services is summarized by comparing the estimated rental value of a constant quality bundle of housing characteristics at a reference location with the estimated rental value of an identical bundle at alternative locations throughout the Chicago metropolitan area.

As noted, housing price initially declines as distance from the city center increases, rises as suburban work places are approached, and declines again thereafter. It reaches relative minimums to the north, west, and southwest at about 13 to 15 miles from downtown Chicago. For the O'Hare airport center to the northwest and the Lake Calumet industrial area to the south, the minimum housing price occurs at about seven to eight miles from the city center.

Like other studies, this article emphasizes the trade-off between housing expenditures and commuting costs in residential location decisions. In terms of economic theory, an optimal location is achieved if the marginal saving in housing expenditures (that is, cheaper housing services) associated with a longer commute is just offset by higher commuting costs. The household adjusts its residence location and expenditures to achieve an optimal location. The adjustments are especially complex if husbands and wives are employed at different workplaces. In such circumstances, the relative valuation of the husband's and wife's commuting time plays an important role in a household's willingness to reside closer to one workplace than the other. This study improves on most of the previous work by considering the interaction between optimal housing consumption and residence location, the potential difference between one- and two-earner households, and the effects of multiple (rather than just one) employment centers.

Results

The key empirical results for housing demand and residence location are reported in Table 1 and Table 2. Results are reported in terms of elasticities, the percent change in quantities sold of a variable divided by the percent change in its price or some other relevant variable. For example, Table 1 indicates that the price elasticity of housing demand is –0.305. This means that each 10 percent increase in housing price results in a 3.05 percent decrease in housing demand.

Housing demand for a one-earner household is relatively unresponsive to changes in price or current income (see left hand column of Table 1). The price elasticity of housing demand is –0.305; while the elasticity of demand with respect to changes in the husband's income is 0.264. Other income and the husband's commuting distance have a negligible impact on housing demand. Not shown in Table 1 are results relating to commuting cost variables associated with the distance and mode of travel to work or demographic variables reflecting family size and composition. None of these variables exerted a statistically significant effect on housing demand.

The two-earner results (right hand column) indicate that housing demand for renter households is less responsive to changes in price and income from alternative sources than for one-earner households. The price elasticity of housing demand equals –0.171, and the husband's earned income elasticity equals 0.137. The working wife's earnings have no systematic influence on housing consumption. Such a finding suggests that the contributions of a wife to household income may be viewed as transitory. As with one-earner households, housing demand of two-earner households is generally unresponsive to household commuting costs and demographic characteristics.

Results relating to residence location for one-earner households indicate that a 1 percent increase in earned income is associated with an increase in commuting distance of 0.437 percent. This suggests that the beneficial aspects of housing consumption at a distant location outweigh the adverse effects of added commuting. The mode of travel to work and demographic variables also included to represent commuting costs do not show a strong association with commuting distance.

Many studies have also found a positive relationship between income and residence distance from the city center. However, there is little evidence regarding the relationship between residence distance to the city center and workplace distance to the city center. That is, do households who work farther from the city center have shorter or longer commutes than those who work in the city center? Theory is ambiguous. On the one hand, the benefits of a longer commute to a suburban worker are less than those to a city worker because the housing price gradient is flatter for suburban workers. On the other hand, the cost of travel may be less in the suburbs because suburbs tend to be less congested. The evidence in this study indicates that suburban workers tend to have longer commutes than city workers. More precisely, commuting distance for one-earner households is positively related to the distance of the workplace location from the city center. The estimated elasticity is .927.

Table 1. Impact of Selected Variables on Housing Consumption

	Percentage Response in Housing Consumption[a]	
One Percent Increase in:	*One-Earner households*	*Two-Earner households*
Housing price	–0.305*	–0.171*
Husband's earned income	0.264*	0.137*
Wife's earned income		.022
Other income	.0009*	.010*
Husband's commuting distance	0.005	.002
Wife's commuting distance	NA	0.005

*Statistically significant at the ten percent level.

[a] The percentage change in one variable divided by the percentage change in another variable is elasticity.

Number of observations = 391.

Table 2. Impact of Selected Variables on Residence Location for Two-Earner Households.

	Percentage Response in:	
One Percent Increase in:	*Husband's Commuting Distance*	*Wife's Commuting Distance*
Husband's earned income	0.213*[a]	0.102*
Wife's earned income	0.207	0.256*
Husband's commuting distance	NA	–0.165
Wife's commuting distance	–0.282*	NA
Husband's workplace distance from the city center	0.201	NA
Wife's workplace distance from the city center	NA	0.481
Distance between husband's and wife's workplaces	0.470*	0.123

*Statistically significant at the ten percent level.

[a] The corresponding number for one-earner households is 0.437.

Number of observations = 388.

Two-earner family residential location patterns are detailed in Table 2. The relative location of household workplaces is the primary determinant of a husband's commuting distance, whereas own workplace location and commuting costs are the key determinants of a wife's commuting. Neither spouse's earnings has a significant impact on the distance a husband journeys to work. A husband's commuting distance varies directly with the distance separating household workplaces and inversely with the wife's commuting distance. Furthermore, a husband's commute is longer if household workplaces are located in the same direction from the city center.

These results suggest that a husband tends to travel to work from a residence located near his wife's workplace. It is tempting to believe that a two-earner household favors the wife's workplace due to the high opportunity cost of her commuting time. Such a view would reflect the fact that, in general, a wife tends to shoulder a larger share of housework and child-care responsibilities than the husband. Unfortunately, the data are inconsistent with this interpretation. The data show that a working wife's earnings have no systematic impact on housing consumption or on her husband's commuting behavior. Hence, it is not the earning power of a wife that draws a household to a specific location. Rather, the overall results are consistent with the view that residence location is chosen relative to the husband's workplace; subsequently, his wife finds a job nearby.

A working wife's commuting distance varies directly with her own earnings but is not significantly affected by her husband's earnings or by the presence of children. Such findings are inconsistent with evidence from other studies suggesting that a wife's labor force behavior is influenced by these factors. Working wives employed in the central city commute roughly three times as far as otherwise similar women employed in the suburbs. Presumably, more centrally located jobs offer higher wages, thereby enticing the wife to endure a longer commute. Because housing costs rise as the center of the city is approached, a household's willingness or ability to favor the wife's workplace in its residence location choice (already weak, at best) diminishes further as she is more centrally employed.

Summary

The increase of wives entering the labor force and development of suburban employment centers have changed the way people choose a house and its location. This article shows that income levels remain the key variable in the choice between central city and suburban living and documents the impact of suburban employment on the price of housing services. In addition, this study indicates that the work location of a working wife has relatively little influence on her family's housing consumption and residence location choice. Thus, the empirical evidence for the Chicago metropolitan area generally does not support the argument that the increase in the number of two-earner households will play a major role in the revitalization of the central city.

More specifically, the study finds: (1) that income increases are associated with increases in both commuting distance and the consumption of housing services. These results suggest that as income rises, the increase in marginal benefits associated with greater housing consumption more than offsets the increase in marginal costs associated with higher commuting time costs. As a consequence, both one- and two-earner households are induced to choose less central locations. (2) that the work location of working wives has relatively little influence on their families' housing consumption and residence location choice. (3) that Chicago housing prices, standardized for housing services provided, reflect the distance from the central business district *and* suburban work places. Previous studies have incorrectly ignored the effect of more than one business district. In the Chicago metropolitan area, the price of housing services declines as the distance from the city center increases, but rises as suburban work places are approached; then declines again thereafter.

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ANNE E. WINKLER

Job Growth: Which States Have a Comparative Advantage and Why

Job growth in a state is a consequence of the unique economic climate present in the state. Those characteristics expected to lead to greater job growth are typically regarded as favorable. The first section of this article estimates the comparative advantage of each state using data from the period 1980 to 1985. In particular, the focus will be on the East North Central states of Illinois, Indiana, Michigan, Ohio, and Wisconsin. The second section of the article identifies factors that enhance a state's comparative advantage in employment. The final section provides estimates of the contribution of each of the identified factors to job gains (losses) in the state of Illinois.

Identifying a State's Comparative Advantage

State employment gains in a particular industry can be attributed to three factors: employment gains related to the growth of the US economy; gains related to differential employment growth among industries; and gains related to differential employment growth among states. The last component, which is the focus of this article, indicates a state's comparative advantage, that is, the number of additional jobs in a particular industry the state can provide relative to the US average. In the regional analysis literature, this type of decomposition is referred to as the shift-share technique.

These compositional effects can be illustrated by examining employment changes in Illinois manufacturing. From 1980 to 1985, Illinois lost a total of 227,000 manufacturing jobs, a decline of 18.8 percent. US manufacturing employment fell 5.25 percent over the same period. The greater decline in Illinois manufacturing employment relative to the United States signals the state's weak economic position and translates into a loss of 163,000 Illinois jobs. (See Table 1) At the same time, total US employment increased 7.6 percent, providing 92,530 additional jobs for Illinois. Finally, the slower growth of US manufacturing employment relative to total US employment growth, contributed to the loss of 156,000 jobs. The loss of 163,000 jobs due to Illinois' comparative disadvantage, the gain of 92,530 jobs due to growth in US total employment, and the loss of 156,000 jobs due to a shift in the industrial mix of US employment add up to a total loss of 227,000 manufacturing jobs over the period 1980 to 1985. Table 1 provides a similar breakdown for job gains in total and services employment. The remainder of this article will focus solely on employment change due to each state's comparative advantage.

Table 1. Decomposition of Job Gains and Losses for Illinois, 1980–1985 (in thousands of jobs)

	Total Employment	*Manufacturing*	*Services*
Total gain or loss (sum of effects)	-83	-227	158
Gain or loss due to:			
Comparative advantage	-454	-163	-52
US growth	371	92	72
Industrial mix	0	-156	138

Source: *Employment and Earnings*, Bureau of Labor Statistics

Table 2. Comparison of State and US Growth in Total Employment for Selected Periods

	Percent Change		
	80–85	*75–80*	*75–82*
US	7.7	17.9	16.7
IL	-1.7	9.8	3.9
IN	2.2	9.7	4.5
OH	0.3	8.7	2.7
MI	1.8	9.8	1.8
WI	2.0	15.6	11.3
PA	-0.4	7.2	3.3
AZ	26.0	39.1	41.3
GA	18.9	23.0	25.4
FL	23.7	30.2	37.0
NH	21.0	31.5	34.6

Source: *Employment and Earnings*, Bureau of Labor Statistics

Comparing Each State's Comparative Advantage

As discussed, a state's comparative advantage in providing jobs is measured by employment growth in a given industry relative to US average growth in that industry. States can be categorized into two groups: those that experienced greater growth in industry employment than the US average for that industry and those that experienced less or negative growth. Table 2 illustrates the growth of total employment for the East North Central states and the US for selected periods. For the period from 1980 to 1985, as well as for the earlier periods 1975 to 1980 and 1975 to 1982, total employment growth in Illinois lagged very much behind US growth. This holds true for the East North Central states and Pennsylvania as well. In comparison, employment growth in Arizona, Georgia, Florida, and New Hampshire greatly outpaced total US employment growth during these periods.

Each state's comparative advantage in total, manufacturing, and services employment is presented in Table 3. To permit meaningful cross-state comparisons, the figures in this table are presented as jobs gained per 1,000 people.

In terms of their competitive position in providing total jobs, Illinois, Indiana, Michigan, Ohio, and Wisconsin ranked near the bottom of the list, 48th, 39th, 40th, 45th, and 42nd, respectively. With regard to Illinois, a loss of 40 jobs per 1,000 people (or 454,000 jobs in absolute numbers, see Table 1) over the five-year period can be attributed to Illinois' comparative

Table 3. Job Gain (Loss) in Total, Manufacturing, and Services Employment per 1000 People, 1980–1985

	Total Employment			Manufacturing Employment			Services Employment		
	Total Gain or Loss	*Gain or Loss Due to Comparative Advantage*	*States Ranked by C.A. (1 = most C.A.)*	*Total Gain or Loss*	*Gain or Loss Due to Comparative Advantage*	*States Ranked by C.A. (1 = most C.A.)*	*Total Gain or Loss*	*Gain or loss due to Comparative Advantage*	*States Ranked by C.A. (1 = most C.A.)*
AL	17	-10	29	-2	-3	20	10	-2	22
AK	194	122	1	-4	-2	38	38	22	1
AZ	97	68	2	10	13	2	33	17	2
AR	21	0	23	0	5	12	11	-0	17
CA	47	13	15	3	7	8	20	0	16
CO	59	26	8	4	8	7	23	4	10
CT	46	10	19	-10	2	10	21	1	12
DE	57	23	9	2	8	9	NA	NA	NA
DC	21	34	5	10	1	25	NA	NA	NA
FL	87	50	3	6	8	5	33	15	3
GA	74	44	6	6	11	3	21	8	6
HI	19	-13	32	-2	3	29	12	-10	43
ID	9	-18	37	2	8	13	6	-8	40
IL	-7	-40	48	-20	-14	51	14	-4	32
IN	9	-21	39	-9	-2	37	13	1	19
IA	-12	-41	49	-14	-9	48	8	-8	41
KS	13	-18	36	-7	-3	41	9	-7	38
KY	10	-19	34	-6	-2	33	10	-3	25
LA	4	-24	43	-9	-6	46	11	-4	26
ME	36	8	21	-6	-1	28	NA	NA	NA
MD	41	10	20	-5	-2	34	NA	NA	NA
MA	48	12	18	-3	3	19	NA	NA	NA
MI	7	-22	40	2	4	16	11	-4	33
MN	24	-10	30	1	6	11	16	-4	31
MS	3	-23	41	-0	4	15	4	-7	37
MO	26	-5	27	2	3	21	14	-4	28
MT	-3	-30	44	-3	2	12	6	-9	42
NB	14	-16	35	-5	2	31	17	1	15
NV	57	19	12	3	5	14	34	-12	44
NH	88	50	4	7	14	1	29	12	4
NJ	49	17	13	-8	-3	42	26	8	5
NM	40	13	17	2	4	18	16	1	14
NY	31	0	24	-9	-4	45	19	-2	23
NC	45	14	16	1	9	4	15	2	11
ND	9	-20	38	-0	1	24	13	-4	27
OH	1	-30	45	-13	-7	47	11	-5	35
OK	14	-15	33	-6	-3	43	10	-4	29
OR	-6	-36	47	-6	-1	30	9	-7	39
PA	-1	-32	46	-20	-14	50	17	-1	21
RI	29	-3	25	-9	-2	36	NA	NA	NA
SC	35	6	22	-9	-2	35	16	5	9
SD	14	-12	31	2	4	17	12	-4	30
TN	25	-4	26	-3	3	22	15	1	13
TX	58	27	7	-4	0	27	23	8	7
UT	51	22	11	4	7	9	NA	NA	NA
VT	46	16	14	-3	2	23	17	-1	20
VA	54	23	10	2	6	10	24	8	8
WA	24	-6	28	-4	0	26	16	-1	18
WV	-26	-51	51	-14	-11	49	8	-3	24
WI	8	-23	42	-9	-3	44	11	-6	36
WY	-11	-46	50	-4	-3	50	9	-5	34

Source: *Employment and Earnings*, Bureau of Labor Statistics.

disadvantage. However, the loss due to Illinois' weak competitive position was partially offset by the positive effect of overall US growth on Illinois employment. As a consequence, actual job loss in Illinois in total employment over the five-year period was seven jobs per 1,000 people (83,000 jobs in absolute figures, see Table 1).

The East North Central states, with the exception of Michigan, ranked below average in terms of their comparative advantage in providing manufacturing jobs as well. Illinois, Indiana, Ohio, and Wisconsin ranked 51st, 37th, 47th, and 44th respectively. Michigan ranked 16th. In terms of their comparative advantage in providing service jobs, these states did not fare much better. Out of 44 states, Illinois, Indiana, Michigan, Ohio, and Wisconsin ranked 32nd, 19th, 33rd, 35th, and 36th.

Factors Affecting a State's Comparative Advantage

State-specific characteristics affect a state's ability to provide jobs. Following the lead of an article by William Kahley published in the May 1986 issue of *Economic Review* (a publication of the Federal Reserve Bank of Atlanta), this section examines factors that are expected to contribute to a state's comparative advantage.

Factors that are thought to contribute to a state's comparative advantage include the skill level of the workforce. A skilled workforce might be valuable to employers and enhance a state's comparative advantage in providing jobs. It also seems reasonable to hypothesize that location of a state would be an important contributor. One would expect the sunbelt states to have a comparative advantage over states with a relatively harsher climate. Another factor is the average wage level in a given state. Wages represent a cost to employers and higher than average wages are expected to reduce a state's comparative advantage in providing jobs.

Comparative advantage may also be influenced by per capita state taxes. Higher per capita taxes may provide a comparative disadvantage because taxes represent a cost or burden. However, higher taxes provide the means to fund public services and may represent a state benefit. An additional factor is the number of union workers in a state as a percentage of all workers. A less-unionized workforce is expected to improve a state's comparative advantage. Finally, average energy prices in a state may be important. Higher prices are expected to affect a state's position negatively.

Regression analysis was used to determine the statistical relationship between the identified factors and a given state's comparative advantage in providing jobs in terms of total employment, services, and manufacturing employment. Comparative advantage was measured as in Table 3 using population-adjusted figures to permit cross-state analysis.

Factors Found to Be Important Contributors

This section examines factors contributing to job growth in total manufacturing, and services employment. In terms of total job creation, average state wages, the severity of a state's climate, skill level (measured as the percentage of the population with a college education), and state per capita tax burden affect a states' comparative advantage (see Table 4). As expected, average wages, measured by average hourly wages of production workers on manufacturing payrolls, have a negative and statistically significant effect on a state's comparative ability to provide total jobs. Other things equal, a ten-cent decrease in Illinois average manufacturing wages in 1980 from $8.02 to $7.92 per hour would generate 13,282 additional jobs over the subsequent five-year period.

Skill level, as measured by the percentage of the population over 25 years of age with a college education, was found to have a positive and statistically significant effect on a state's relative ability to provide total jobs. In 1980, the percentage of Illinois' population over age 25 with a college education was 16.2 percent, identical to the US average. All else equal, a 1 percent increase in Illinois' college educated population, equal to an additional 10,820 people, would generate 9,237 additional jobs in total Illinois employment during the subsequent five-year period.

Table 4. Factors That Would Enhance Illinois' Comparative Advantage in Providing Jobs

Given	*Number of Jobs Created 1980–1985*		
	Total Employment	*Manufacturing*	*Services*
10 cent decrease in average manufacturing wages in IL	13,282*	3,099*	2,841*
1% decrease in severity of Illinois' climate	5,058*	991*	1,027*
1% increase in IL population over 25 with a college education (= 10,820 people)	9,237*	219[a]	1,446*
1% increase in IL population over 25 with a high school education, (= 44,000 people)	2,959[a]	2,921*	NA
1% decrease in per capita tax burden (= $4.44)	1,730	(102)[a]	163[a]
1% decrease in unionized workforce in IL (= 14,870 workers)	362[a]	973	NA

Notes: This table is based on data for 1980 and 1985. The changes in the factors are based on their values in 1980.

[a] indicates that the factor was not retained in the final equation.

* means that the coefficient used to compute the results was statistically signficant at conventional levels.

Data sources: *US Statistical Abstract, 1986*, *Employment and Earnings*, Bureau of Labor Statistics, various issues, Historical Climatology Series, 5-1, State, Regional and National Monthly Seasonal Degree Days Weighted by Population, 1980, *State Energy Price and Expenditure Report*, Department of Energy, 1970–1981, and State Government Collections, 1980.

As expected, the severity of a state's physical climate was found to have a statistically significant adverse effect on a state's ability to provide jobs in total employment. Severity of climate was measured by the sum of heating and cooling degree days in 1980 (the number of degrees by which the average temperature on a given day deviates from the norm of 65). The "sun states," California, Florida, Texas, Louisiana, Arizona, Georgia, and South Carolina are at a comparative advantage while northern states like North Dakota, Minnesota, Vermont, Maine, New Hampshire, Wisconsin, and Montana are at a comparative disadvantage. For Illinois, all else equal, a 1 percent decrease in the severity of Illinois' climate would lead to an increase of 5,058 jobs in total employment over a five-year period.

Per capita taxes as measured by the sum of state corporate income, personal income, and general sales taxes divided by state population, were found to have a negative but statistically insignificant effect (at conventional levels) on a state's comparative advantage in providing total employment. Despite this factor's statistical insignificance, it was retained in the final analysis. All else equal, a 1 percent reduction in 1980 Illinois per capita taxes, equal to a decrease of $4.44, would increase total employment by 1,730 jobs over the five-year period.

With respect to total employment, three additional factors were examined but not included in the final analysis (see Table 4 notes). These factors consist of skill level measured as the percentage of population with a high school education, percentage of workforce in a union, and average state energy prices. The first two factors were each examined in conjunction with average wages, percentage of the population with a college education, state climate, and per capita tax burden. While each was found to have a statistically insignificant effect on a state's comparative advantage, they did affect a state's comparative advantage as anticipated. An increase in a state's high school educated population was found to enhance the state's comparative advantage, while an increase in the unionized workforce was found to affect the state's competitive position adversely. Neither factor was retained in the final analysis.

Finally, state energy prices as measured in average price per million BTU, were expected to negatively affect a state's position and play an important role in determining a state's comparative advantage. However, this result did not turn out in the case of total, manufacturing, or services employment, and so this factor was eliminated from further analysis.

Table 4 also indicates important factors that contribute to a state's comparative advantage in manufacturing and services employment. Factors found to be important to job growth in total employment are found to be important in these sectors as well. In particular, average wages, physical climate, and skill level were found to have a statistically significant effect. However, the two measures of skill affected states' comparative advantage in providing employment in these sectors differently. Skill level, as measured by the college educated population, was found to have a statistically significant effect on services, signalling that a more highly educated population enhances a state's competitive position in providing service employment. This is a result similar to that found for total employment. Other things equal, a 1 percent increase in the college educated population as of 1980 would create 1,446 jobs over a five-year period.

However, in the case of states' comparative advantage in manufacturing, skill level as defined by the high school educated population was found to be statistically important. As Table 4 shows, other things equal, a 1 percent increase in the high school educated population would create 2,921 jobs during the subsequent five-year period. When college educated population was included as well as high school educated population (and the remaining factors, see Table 4), this factor had a positive but insignificant effect.

In terms of manufacturing, an additional factor, the percentage of unionized workers in a state was examined. The analysis shows a negative but statistically insignificant relationship between the percentage of workers unionized in a state and a given state's comparative advantage. However, this factor was retained in the final results due to its theoretical importance. Other things equal, a 1 percent decrease in the number of union workers in Illinois in 1980, equal to 14,870 workers, would generate 973 additional jobs over the subsequent five year-period.

Per capita taxes were not found to enhance or diminish a state's comparative advantage consistently for total, manufacturing, and services employment. Instead, the results indicate that per capita taxes diminish a state's comparative advantage in providing jobs in total employment (as previously discussed) and services but enhance a state's comparative advantage in providing manufacturing jobs. However, for all three cases, these relationships are found to be statistically insignificant.

Conclusion

During the period 1980 to 1985, as well as during the preceding five years, growth in Illinois' employment greatly lagged behind the US average. This slower growth is made evident by Illinois' rank of 48th, 51st (out of 50 states and D.C.) and 32nd (out of 44 states) in terms of the state's relative ability to provide jobs in total, manufacturing, and services employment, respectively. Important contributors to Illinois' comparative disadvantage were found to be higher than average hourly manufacturing wages in 1980 and the relative severity of Illinois' climate. While it is clearly impossible for Illinois to relocate to the sunbelt, the evidence suggests that Illinois' competitive position can be improved by a decrease in average wages, relative to other states. Another means to enhance Illinois' comparative advantage is by having an increasingly educated population, relative to the US average. In 1980 the percentage of Illinois' population with a high school education and the percentage with a college education were on par with the US average. The findings with respect to taxes do not offer clear guidance for Illinois tax policy.

Illinois Business Indexes

The BEBR's leading indicator continues to provide evidence that Illinois may be headed for an economic downturn. As Chart 1 shows, the three-month moving average (MA 3) fell below the six-month moving average (MA 6) in April and remained below in May. If the MA 3 index remains below the MA 6 index during the months of June and July, the four-month trend will signal that there will be a downturn in the Illinois economy beginning within the next few quarters. However, the actual turning point in economic activity cannot be predicted with certainty.

Growth in Illinois retail sales from one year prior has significantly outpaced inflation as measured by the Chicago CPI, indicating the current strength of the Illinois economy. As Chart 2 shows, retail sales increased 10.7 percent from April 1986 to April 1987. At the same time, as Chart 5 shows, inflation grew at 4.4 percent, producing real growth of 6.3 percent.

The Chicago help-wanted advertising index (see Chart 3), which measures the volume of classified ads in major Chicago newspapers, grew 29.1 percent from May 1986 to May 1987 providing further evidence of the strength of the Illinois economy. However, the St. Louis index (see Chart 4) has not shown such positive signs. During the period July 1986 to May 1987, with the exception of November 1986, the help-wanted advertising index for St. Louis declined from its value one year prior.

Finally, Charts 5 and 6 indicate that inflation in April and May has continued the pace set in March. Prices grew 4.4 percent in Chicago and 3.74 percent in St. Louis over the period May 1986 to May 1987.

ILLINOIS BUSINESS INDEXES

	Percent Change May 1986–May 1987	*May 1987*	*April 1987*	*March 1987*	*Feb 1987*	*May 1986*	*April 1986*
Leading Indicator (MA3)	5.32[a]	10.67	12.13	13.88	14.45	5.35	2.62
Leading Indicator (MA6)	9.86[a]	12.50	13.27	12.48	12.46	2.64	1.76
Employment-manufacturing (in thousands)[b]	0.50	927.3	926.6	925.9	926.5	922.7	927.8
Average weekly hours-manufacturing[b]	1.98	41.3	41.2	41.5	41.5	40.5	40.6
Weekly earnings-manufacturing[b]	3.98	$448.93	$447.43	$451.11	$448.62	$431.73	$431.58
Help wanted advertising-Chicago (1969 = 100)[c]	29.07	111	105	113	113	86	94
Help wanted advertising-St. Louis (1969 = 100)[c]	–3.08	63	63	68	70	65	65
Retail Sales (in millions)[d]	–2.88	$5,775	$6,082	$5,713	$4,952	$5,946	$5,496
Coal production (in thousands of tons)	–14.52	4,664	5,457	5,145	5,010	5,456	5,866
Petroleum products (in thousands of barrels)[b]	–11.78	2,000	2,000	2,080	1,898	2,267	2,376
Vendor performance[e]	9.09	60%	57%	55%	52%	55%	50%
Building permits (in thousands)							
Residential housing units	–16.38	5.095	4.624	4.170	2.521	6.093	6.362
Value of Residential housing	–3.38	$361,550	$384,791	$312,391	$192,823	$374,180	$374,451
Value of nonresidential construction							
Industrial buildings	–43.03	$28,477	$37,927	$26,564	$6,136	$49,990	$21,912
Office, banks, and professional buildings	37.08	$40,327	$46,810	$36,002	$41,551	$29,418	$32,654
Stores and other mercantile buildings	–8.56	$40,746	$26,679	$36,081	$25,312	$44,558	$36,378
Other	104.21	$5,681	$5,661	$4,701	$6,037	$2,782	$3,903
Consumer price index (December 1977 = 100)							
North Central US[f]	3.74	180.8	180.4	179.5	178.5	—	173.9
North Central/population more than 1,200,000[f]	3.49	184.5	184.0	183.2	182.5	—	177.8
North Central/population 360,000 to 1,200,000[f]	4.30	179.5	179.5	177.8	177.2	—	172.1
North Central/population 50,000 to 360,000[f]	4.51	176.9	176.1	175.3	173.6	—	168.5
North Central/population less than 50,000[f]	2.71	174.9	174.6	174.0	172.9	—	170.0
Chicago (1967 = 100)	4.38	338.4	337.1	335.5	334.2	324.2	323.7
St. Louis (1967 = 100)	3.74	330.5	—	328.8	—	318.6	—
		1986:IV	1986:III	1986:II	1986:I	1985:IV	1985:III
Personal income (in millions)[b,g,h]	4.03	$180,153	$178,757	$179,622	$174,013	$173,178	$170,458
Per capita personal income[b,g,h]	3.41	$15,513	$15,490	$15,029	$15,051	$15,001	$14,788

[a] Represents absolute change (percent change not relevant); [b] Recent month is preliminary figure; [c] The Conference Board, *Help Wanted Advertising*, May 1987; [d] Latest month projected by BEBR; [e] Percentage of companies receiving slower deliveries; [f] Percent change between April 1986 and April 1987; [g] Seasonally adjusted at annual rates; [h] Percent change between 1985:IV and 1986:IV

Chart 1. Composite Leading Indicator (average percent change in base indexes)

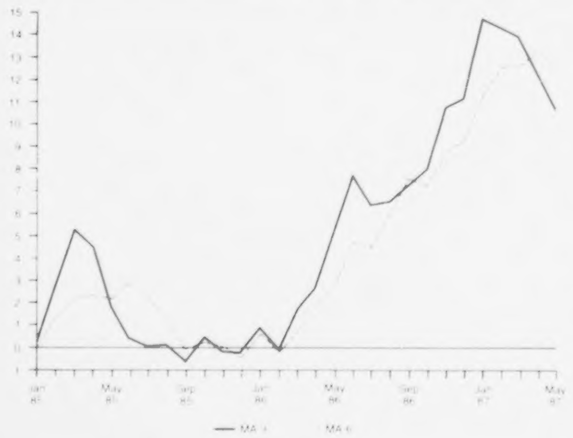


Chart 2. Year-to-Year Percent Change in Illinois Retail Sales

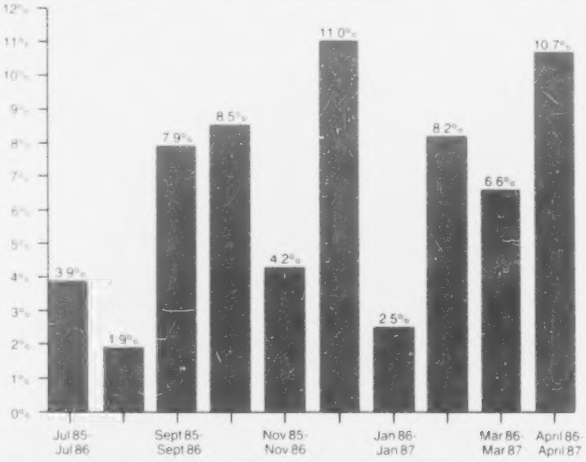


Chart 3. Year-to-Year Percent Change in Help-Wanted Advertising—Chicago

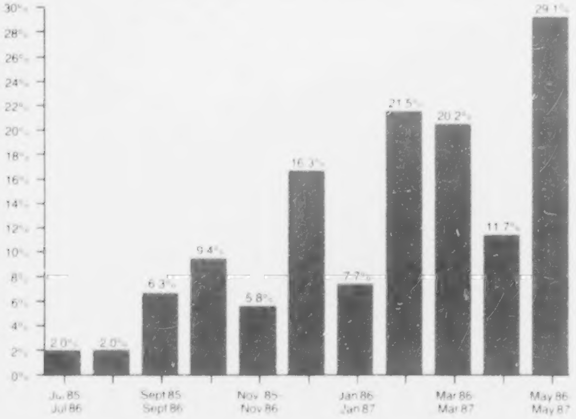


Chart 4. Year-to-Year Percent Change in Help-Wanted Advertising—St. Louis

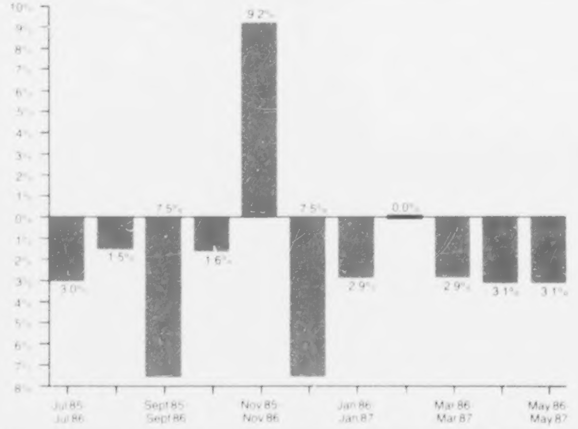


Chart 5. Year-to-Year Percent Change in Chicago CPI

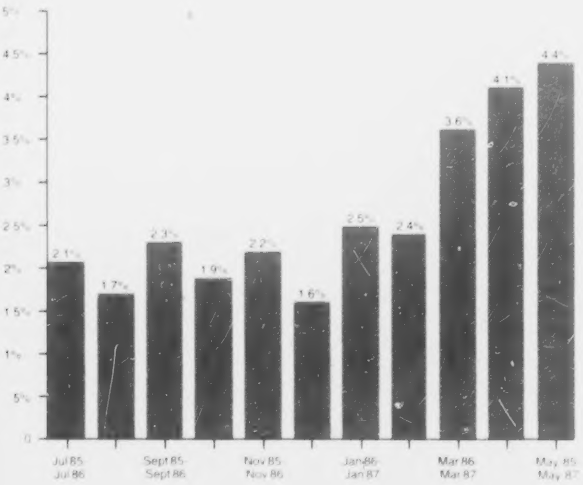
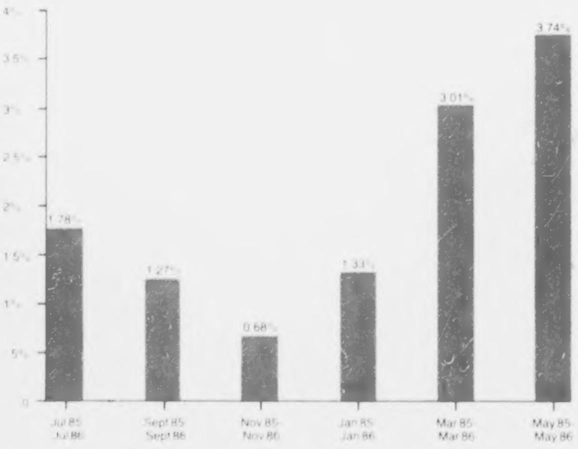


Chart 6. Year-to-Year Percent Change in St. Louis CPI



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Illinois Economic Outlook

Illinois Current Economic Indicators

	History				*Forecast*			
	86:II	86:III	86:IV	87:I	87:II	87:III	87:IV	88:I
Personal income (in millions)								
Total personal income	$179,662	$178,757	$180,153	$181,586	$180,672	$183,463	$187,616	$191,000
Manufacturing	28,684	28,871	29,334	30,172	30,276	30,517	30,666	30,824
Services	30,295	30,791	31,256	31,691	31,295	32,172	33,519	34,482
Wholesale and retail trade	22,748	23,085	23,355	23,821	24,249	24,694	25,137	25,582
Finance, insurance, and real estate	11,562	11,869	12,196	12,056	11,850	12,078	12,554	12,810
Employment (in thousands)								
Private nonfarm employment	4,045	4,109	4,116	4,113	4,117	4,124	4,128	4,132
Manufacturing	922	920	924	928	920	915	909	902
Services	1,120	1,133	1,138	1,138	1,146	1,155	1,163	1,172
Wholesale and retail trade	1,176	1,182	1,198	1,208	1,215	1,221	1,227	1,232
Finance, insurance, and real estate	345	348	350	350	354	358	361	364

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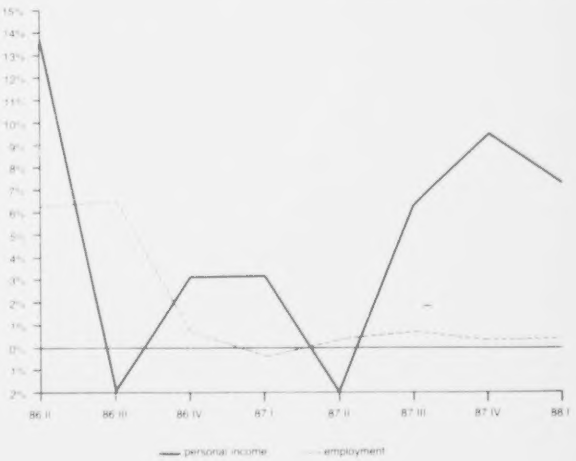
The Illinois Econometric Model predicts steady growth in nonfarm employment. However, manufacturing employment is expected to decline by 0.35 percent during 1987 while employment in the other sectors is forecast to remain steady or increase. The wholesale and retail trade sector is expected to lead the way with growth in 1987 of 2.5 percent.

The growth rate of personal income is more erratic than the growth rate in employment as indicated by the accompanying chart. The state experienced a decline in personal income in the third quarter of 1986 and a decline is forecast for the second quarter of 1987. The growth through the first quarter of 1988 is supported by increased activity in the service, wholesale and retail, and financial sectors as indicated in the table.

Illinois Personal Income and Employment (annualized growth rates)



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